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ABSTRACT

This report identifies ideas for educational change, examines the efforts to establish these ideas, and rates the efforts to apply them as successful or unsuccessful and to attribute that success or failure to particular factors. The procedure involved fixing the time period (1895-1970), selecting and describing the changes, selecting the categories, classifying the changes, and discussing the relationship between the changes and associated factors. Each change has a reference to an authoritative source, and an alphabetical glossary of the changes is included as an appendix. The four categories used are a) a successful change that has permeated the system, b) a successful change which is not so widely used, c) a change not accepted but which has affected the system, and d) a change which has not been implemented. Eleven tables give details of these categories. Factors inside and outside the educational system which affect change are identified as educational research, school personnel, recommendations and committees, professional and extra-legal agencies and organizations, the federal government, the courts, and society. About 75 percent of the changes were judged successful. Seventeen conclusions and recommendations are listed as guides for those attempting to promote change. There is a 50-item bibliography and a final section on the induction and management of change. (MBM)

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A STUDY OF EDUCATIONAL CHANGE

By

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FORWORD

This study is a broad analysis of educational change, not the kind of specific analysis that a case study would have made possible. Consequently, the findings and conclusions lack the depth and refinement that the planner of educational innovations would most desire. But the project does open up the study of educational change empirically and gives approximations to the sort of information which change agents need.

The work has been carried on under the pressure of time during hours that would normally have been used to recuperate from the stress of regular activities. This report would not have been possible without the able assistance of Mrs. Joyce Wong, whose painstaking work made possible the compilation of educational changes used in the study and Mrs. Susan Reynolds-Greenlees, who typed and proofed the Manuscript and saw it through the mimeographing. Without their assistance, the work could not have been completed on schedule.

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CHAPTER ONE

THE TASK: ITS SCOPE AND DIFFICULTY

The purpose of this report is to identify ideas for educational change, examine the efforts to establish these ideas in practice, rate the efforts to apply them as successful or unsuccessful, and to attribute that success or failure to particular factors. Specifically, we have responded to the query:

> Over the past 30-70 years numerous change oriented ideas have been advanced in the educational arena. Which of these did and did not result in educational change? What are the factors which can be identified as being related to the failure of an idea to become established practice? And conversely what are the factors which can be identified as being related to the success of an idea in becoming established practice?

In other words, our task is to determine why, given numerous educational ideas--ideas in the form of words, in the form of committee deliberations, in the form of individual pronouncements, etc.--some will be accepted and spread widely while other will be forgotten?

School and Society Interact

The educational system is only one of many social institutions that interact and affect each other. The religious, familial, political, military, legal and industrial enterprises are other systems that make a difference in the lives of people and in other institutions that serve them. Other organizations and individuals also interact and influence policies and programs that make a difference in the way people live and the things they do. These additional organizations include unions,

professional organizations, lobbyists, private foundations, and individual spokesmen whose reputations and words command a following. Undergirding these visible influences are the mores of the nation and of the locale that wrestles with decisions about ideas for change. Any assessment of success or failure of change-ideas in the educational arena must allow for the influence of the web of relationships that provide the social context of the educational enterprise.

If the educational system "weighed" the same as any other institution, it would not be particularly important to single out the school as a crucial instrument of social change. Any other institution would do. However, education has historically enjoyed a special role in man's hopes for social improvement, and it continues to enjoy that same confidence today. Some may argue that the school does not receive the support of the public and point to the low salaries of teachers, the shortage of materials, the inadequate research and support funds, and the dissatisfaction (depending on locale) with integration, sex education, dress codes, curriculum, etc. These issues do bring conflict to the school. They are real problems, not to be taken lightly, and ought to be solved. But they cannot be taken as indications that the American public has lost faith in the schools so long as the schools are regarded as the proper place for these issues to be heard. The lack of support for public education may limit the effectiveness of the schools, but the questioner does not ask <u>if</u> education should be supported, but <u>how much</u> support education should receive. Few critics of the public schools recommend their abolition. They recommend their improvement. And because of the central role of education in the continuation and improvement of the American society, schools continue to be viewed as the place

to learn how to solve society's problems.

The school cannot be regarded as autonomous in bringing about social change. It is an agent of society and reflects the perspectives of the society while charged with the task of shaping those very outlooks to which it is itself subjected; it is held responsible for the reform of the society and also held responsible for answering to that society. In this state of affairs, what is the source of ideas for change--the society or the school? What is the responsible group for installing new ideas--the society or the school? Who is responsible for guarding society's interests--the society or the school? Who is responsible for continuing or eliminating existing practices--the society or the school? How can factors that cause change-ideas to be either implemented or denied be located--are they in the society or the school? And what do we mean by "society" and what do we mean by "school?"

In a very real sense there is no school and there is no society. Each consists of a mixture of factors (including each other). Neither school nor society can be described with an average as we might determine the mean of a column of digits. We can tally statistics about a school in terms of pupils, teachers, expenditures, and mobility just as we can tally data about a city's crime rates, property assessments, and population; but neither compilation enables us to describe the school or the city as it relates to a given issue and neither profile provides us with information to predict either public or educators' responses to ideas for change. The factors that determine change are as likely to be in the voice of an influential spokesman, the strategies employed, legal mandates, emotional incidents, community mores, or a combination of

unpredictable factors. Thus, we must not only deal with the question of the source of power in managing school or society, but also the identification of crucial forces within the school and society.

Limitations

The effort to accomplish this analysis is fraught with factors that limit the precision of this report. The substance of this report is limited by the operational definitions employed and the ground rules utilized. These definitions and ground rules are adapted from the literature in the social sciences. But until a more viable theory of social and institutional change is developed, the techniques employed are somewhat arbitrary. It is an easier task to describe an instituion and to compare that institution with its former self or other institutions than it is to determine the factors that either caused or impeded change in it. Little research has been conducted to determine the instrumental factors associated with change in social institutions.

Another limitation arises in the attempt to identify significant ideas for change when the criteria for their selection is undetermined. During the last 75 years, ideas have been proposed that focused on school organization, curriculum, teacher education, facilities, materials, etc. These ideas have been aimed at changing local school systems, state departments of education, regional alignments, national support and international arrangements. The originators of these ideas have been individuals, small groups, professional organizations, legal bodies, accrediting associations, institutions of higher education, governmental agencies, private foundations, special commissions, and a host of other

sources ranging from the boiler room discussions at a local high school to the Congress of the United States. Only a portion of the ideas that have been generated can be included in this report. Criteria for the selection of ideas will necessarily limit the scope of this presentation. Such a sampling is certain to eliminate some ideas the analysis of which might prove useful and important.

Another uncertainty develops around the question of success and failure. Success and failure are relative terms and shadings of success and failure may be based as much on the judgment of the reporter as on the event itself. The criteria used to judge success and failure are, at best, subject to debate. This problem is magnified when the consequences of a change include desirable and undesirable results at the same time. Should success be considered the mere installation of an idea or its installation and practice according to its intended purposes? Many instances of dual results are evident in the world of science and industry: automobiles transport people and goods conveniently while they also kill other people and pollute the air; automation increases production and provides comforts of life while the pride of the craftsman is lost in the transition; and electricity runs homes, hospitals, and factories while faulty wiring destroys homes and businesses. Do similar results, both positive and negative, come from changes and developments in the educational system and, if so, how can the labels "success" and "failure" be applied?

Difficulty of Linking Changes to Causes

Problems also arise in trying to link the success or failure of an idea to specific causes. The factors that eventually determine the outcome of an effort to change the school may be subtle elements that seldom surface. The obvious reasons may have little to do with the life or death of an idea. How do we fix blame or give credit in a society where editorials in the newpaper or on television, school board meetings, referendums, social and legal forces, backyard gossip, political trade-offs, and many other factors may all bear on a single idea for change. How do we determine the force or the main forces in such a social network? The difficulty of this task should not dissuade investigators from attempting the assignment, however. It simply emphasizes that the connection between causes and effects is complex and caution must be exercised as one relates results to the appropriate causal or instrumental factors.

Another consideration is the alteration of an idea from its original form to a revised form with new components that accompany it. Is such an evolution a new idea that should be assessed on its own merits (and thus, one should label the original idea a failure) or is it really a previous idea in disguise? It seems evident that many changes in practice are combinations of previous ideas--some of which were failures and some successes. To isolate changes as if they were discrete and separate is an oversimplified approach to sorting the literature and classifying the complex field of education.

Despite the above forewarnings of the difficulties and limitations of this task, it is quite clear that ideas are deliberately induced into

the educational mainstream and an analysis of the factors accompanying their success and failure deserves attention. Change-ideas have been expressed in the past and they have been diffused through and to people who have been willing to implement them. The conditions that allow change to occur have existed, and an examination of the circumstances and factors that make a difference in the success or failure of an idea is necessary if the improvement of education is to be carried on efficiently.

Limits of Deliberate Change

If we compared educational institutions today with their counterparts of seventy-five years ago, numerous differences could readily be identified. Major differences would be found in school facilities, the use of technology, curricula, teacher behavior (both personal and professional), pupil attrition rates, length of the school year, materials, extra-class activities, organizational patterns, ad infinitum. To be sure, there are many schools whose program today has not shifted drastically from past years, but a comparison of up-to-date schools of today with up-to-date schools of yesteryear would show considerable change. If similar contrasts were drawn in other areas such as industry, law enforcement, hospital administration and organization, housing, or transportation an equally long list of differences could be compiled. Education, and all other institutions have responded to the changing times. Each field of human endeavor has also been affected by developments in technology, science, social science, and the consequences of population increases, demographic shifts, atomized families, shorter work weeks, and higher standards of living. And, as we view changes in institutions such as educational,

religious, political, industrial, military, and legal establishments, it seems reasonable to ask if these changes have come about through deliberate efforts of man or if they were the results of chance. What are the implications of the answer to this question for any current course of action that may change these same institutions during the next ten to fifty years?

If man can plan the changes he desires and promulgate those changes, then he is in a position to shape his institutions to meet his needs. If man can carry off such an order, then he can address himself to the additional task of determining which changes he desires. But only if he can manage planned change is it worth his efforts to puzzle about the kind of changes he wants.

In the promotion of social change there are two opposing views. One view holds that man is helpless in altering the direction and degree of change that occurs in his society. At the other extreme are those who subscribe to the belief that social variables can be manipulated to create the society man wants.

The position that man can do very little or nothing to alter the course of his own circumstances is a view that renders futile the will of man to alter his future. One who holds this view accepts the assumption that the forces that impel man into his future march forward, with or without his effort to alter them; that huge mass and force represented by the human race is comprised of complexities, uncontrollable forces, and unidentifiable elements that are beyond the control of any planned effort to alter the course of human events and the institutions they create; that man cannot alter the chain of human events that have been set off anymore than he can cause the sun to rise at an appointed hour or guarantee immortality.

Contemporary problems and the issues that emerge from such a view suggest questions that challenge this negative perspective. Can man control his own population and restore ecological balance or has the timeline towards self-destruction passed the point of no return? Does medical research that eases suffering and prolongs life represent man's success in altering his circumstances or have medical advances merely been reflections of a society that created conditions for such gains - conditions that were not controlled or influenced by man? Is life itself, both its creation and its preservation, as conceived in advanced biological research, a result of man's tampering with his own future? Can our educational system provide the circumstances, the content, and the objectives that will re-direct human endeavor along productive efforts, or will the wheels of fortune and misfortune churn out a future that is beyond the grasp of the products of formal education? A plethora of troubling questions emerge whether one is optimistic or pessimistic about the control man has over himself. However, if one lacks confidence in man's ability to control at least some of the important factors in his own future, these questions become purely academic and man's joys are limited to an understanding of his condition rather than improving it.

Those who consider man to be in charge of his future and in control of all the important variables or potentially in control - when civilization matures sufficiently -abound with optimism about the power of man. Those who subscribe to this viewpoint move courageously into the ills of society with their intellectual weapons and measure, evaluate, recommend and implement ideas for change. As their ideas find fertile territory for trial and new problems arise, the new problems are approached

with equal fervor and optimism. The process continues until the problem is "mapped" in its entirety, each deterrent to progress is analyzed and brought under control, and more of man's behavior is controlled and prescribed.

Although some theorists adhere strongly to the view that man is helpless in his quest to improve his lot and others insist that social control is possible, we take the position that the truth is somewhere between them.

There are certain trends that appear to be irreversible by deliberate effort. There is an increasing tendency toward concentration of economic power, more and more sophisticated technology, larger and larger units of political power, more and more specialization of labor and consequent interdependence, more and more governmental mechanisms for rendering welfare services, and more and more education for the masses. Of course, it is theoretically possible to reverse deliberately any or all of these trends but it is psychologically and politically impossible. They may in time be reversed, but if they are, the reversal will result more from social catastrophe than from purposeful efforts of men to do so.

It is not possible to return to the old order that existed prior to the development of these trends, for the basis of that order was destroyed by the trends themselves. Furthermore, these trends are even today developing so swiftly that the slow process of automatic adjustment is not a feasible alternative to complete disruption of the social system. The only alternative is deliberate planning for social adjustment within these inescapable tendencies. At the same time, the planning must be made realistic by taking the trends into account, for these trends fix the limits within which deliberate changes can be made. We follow plans

that come from uninformed dreams or intuitive hunches at our peril whether we are planning for changes in education or in the broader society. Only by taking full account of these inevitable trends and the factors that a proposed change involves can our planning and actions become intelligent and responsible. This fact points up the value of this study, the purpose of which is to examine changes in the school to determine the conditions that have had a significant relationship to success or failure of these changes. The implied purpose is that after determining factors that relate to a change that future changes will be managed more effectively, that the risks in trying to produce such a change will be reduced, or that changes with a high risk of installation will not be attempted.

CHAPTER TWO

PROCEDURE

The procedure of this study consists of the following steps: fixing the period of time this survey of changes is to cover, selecting and describing the changes to be included in the analysis, deciding upon the categories into which the changes are to be classified, classifying the changes, and discussing the relationship between the changes and the factors assoicated with them.

Period Covered By the Study

This study covers the seventy-five years from 1895 to 1970. Eighteen and ninety-five is not a hard and fast date since some of the changes we have included were in an incipient state prior to that date. We have chosen 1895 as the beginning of the period under study for a number of reasons. It was near the close of the century that a number of developments that had been underway were gradually coming to a head. For some time there had been a gradual shift in the source of immigrants - a shift from northern Europe to southern Europe and the Orient. In some respects these immigrants were quite different from the Scandanavians, Germans, and English who preceded them. They tended to settle in the cities instead of moving out into the farmlands and they brought with them a cultural tradition that was somewhat at variance with the Anglo Saxon tradition. In the cities the new immigrants tended to keep

to themselves, to speak their own language, and to live in the new land with the same habits and values they had brought from their homeland. They thus created a new type of problem in American culture - how to assimilate people of diverse views into the American way of life. By the closing years of the 1890's, and surely at the beginning of the new century, the acculteration problem came to be seen as primarily a problem of education. The public school system from the first to the twelth grade had only recently been established and was even then seen as one of the primary instruments through which the Americanization of immigrants and their children could be effected.

Another reason for choosing this period is that the 1890's marked the close of the Western frontier. The open country that could be claimed by simply staking out one's portion was at last closed. Perhaps this fact helped to keep the new immigrants in the cities. The closing of the frontier had a tremendous effect upon American culture. It symbolized the closing of an expansive period; it turned the country back upon itself to develop its cities, its industries, and to exploit its forests and cultivate its land. These facts tended to put greater weight on the value of education as a means of increasing the means of making a livelihood.

The rapid increase in school enrollments during this period also forced the leaders in education to cope with new problems and issues in school attendance, facilities, staffing, and educational materials. The 1874 decision in the Kalamazoo Case that legalized general taxation to support education beyond the rudiments of knowledge led to rapid increases in secondary school enrollments. During the 1880 - 1930

period, secondary school enrollments increased fifty fold while the general population in the country only tripled. These increasing enrollments at the turn of the century contributed heavily to usher in a new era in public education.

Moreover, in the closing decade of the century two developments in education were just as important as the closing of the frontier,the impact of the new immigrants, and increasing enrollments. The first of these was the rise of graduate study in education. Before 1890, the University of the City of New York, now New York University, began giving graduate work in education and by 1890 it had developed a graduate program in pedagogy. Two years earlier the New York College for Teachers which later became Teacher's College was established and be the close of the century had developed a full-fledged program of graduate work in education leading to the Doctor's degree. The development of graduate study in education presented a transition from the training of teachers in institutes and normal schools to the study of education as a professional discipline with the emphasis, as James Earl Russel put it, on general culture, professional knowledge, technical skill, discipline in the subject matter one was to teach. These areas have remained the primary emphasis in teacher education at both undergraduate and graduate levels.

The second of these educational developments was the rise of scientific educational study. The first significant objective studies in education were made by Joseph M. Rice, who in 1892 made an extensive survey of some 30 school system and published his reports in the Forum. Immediately thereafter he set out upon an extensive study of achievement in the schools. In 1897, he reported on his study of spelling which

showed that the amount of time spent in spelling was not related to the amount of achievement. The rise of an objective study of education together with the development of education as a graduate study set the stage for the advancement of education.

Moreover, the efficiency movement in industry had gained considerable momentum by 1895 and was beginning to express itself in educational terms. By the early 1900's, the testing movement had begun in earnest and in the 'teens an intensive drive was on to eliminate deadwood from the curriculum, a drive that continued throughout the period under consideration - witness the emphasis upon New Math, New Physics, New Biology, New Chemistry, New Social Studies, etc., in the fifties and sixties.

Selecting and Describing Changes

In the sevety-five year period many changes in the public school have been attempted ar actually made for which there is no record. Schools have made changes in their curriculum, in methods of teaching, in ways of reporting pupil progress to parents, or even changes in administrative procedures and achool policies, to mention only a few, as part of the ordinary operation of the school. No record has been made of some of these efforts to change the school, even though they were probably of general significance. The changes which make up the list for analysis in this study are those for which reference is made in such sources as the history of education, dictionaries of education, and encyclopedias of education. Some of these changes might have been of no greater value than those which were made but not recorded in the authoritative accounts. But on the whole it may be assumed that those

changes which are reported in these accounts are of general significance.

The list of changes which have been compiled is neither exhaustive nor randomly selected. But it is believed that the list is so nearly exhaustive that the addition of other instances that might have been overlooked will make no appreciable difference in the findings. The authors followed an informal procedure in working out the list of changes. They made a list first from their own knowledge of the history of education and then added changes as they turned up in memory or in the authoritative references. Except in the case of teacher education, changes in institutions of higher learning were not included since this report is concerned with the question of how changes are brought about in the public elementary and secondary schools.

When the list was compiled, each change was then described by reference to an authoritative source. These descriptions make up the glossary of changes which is included in this report.

Deciding on the Categories

The categories were worked out partly intuitively and partly empirically. We approached the list of changes with a few conceptions in mind as to how they might be classified. These conceptions were then tested by reference to the nature of the changes themselves. The character of the changes then indicated additional categories which were added to those which had been initially determined. In this way, a set of categories for classifying the data were developed.

It became apparent on inspection of the changes that some originated outside the school system while others emerged within the system itself.

The first general set of categories therefore consisted of an inside-outside dichotomy. A second dichotomy was arrived at by assuming that changes that have occurred since 1950 have not been tested over a long period of time. The second dichotomy consisted of post 1950 and pre 1950 changes.

Once these four major categories were established, and the changes classified in accordance with them, it was then possible to set up success-failure categories into which the changes in these major categories could be classified. It was possible from inspection of the changes and the authoritative literature to decide whether a change had been continued, continued and grown, discontinued entirely, or discontinued with a residual effect.

Five elements within the school system were listed as potential recipients of the proposed change. These five facotrs were: Instuction, Curriculum, Organization and Administration, facilities, and materials. We then classified the changes according to the element that the change was planned to alter.

Classifying the Changes

With the foregoing categories in mind, the authors independently classified the list of changes in accordance with their criteria. They classified the changes independently and then compared the results of their work. They used a simple method of agreement and disagreement and calculated percent of agreement. The coefficient of agreement on the inside-outside dichotomy was .88; for the post-pre 1950, it was .98; for the success- failure categories, .68 for each of the four categories, and .72 for the focus of the change.

CHAPTER THREE

FINDINGS

The changes and the data that depict the characteristics of these changes are presented in this section. Changes are presented in alphabetical order and, therefore, no special significance is attached to the order of presentation of the changes.

In many instances a change is quite broad in scope and includes numerous sub-changes that comprise the total. These sub-changes do not all meet with success or failure to the same degree as the total change. These differences in success might arise from particular circumstances where change has been attempted or because segments of the total change may differ from each other.

The different degrees of success or failure are evident, for example, in the classification of desegregation as a successful or unsuccessful change. The rating depends partly on local conditions since some communities have desegregated their schools with little difficulty, some have met with resistance and the hostility remains, some have faced relatively simple situations, and others have encountered circumstances that included unmanageable conflicts. The classification in this study is based on broad, overall results rather than on isolated cases that may not represent the typical state of the change.

Another difficulty arises when a program for change includes some elements that have failed and some that have succeeded. For instance, in the field of media and technology one can point to the failure of the

wire recorder, opaque projectors, stereoscopic slides, and silent films to remain as a significant part of the equipment and materials in the schools. On the other hand, media and technology are obviously present in the form of 16 mm sound film, overhead projectors, video tape recorders, and casettes in their various forms. To do justice to the changes in media and technology would require an extensive and separate document that was addressed exclusively to the topic. The same elaboration of changes would be possible in regard to special education, standardized testing, vocational and technical education, reading instruction, and many other broad changes listed in this study.

These two examples illustrate the macro-level of many of the changes included in this report. The failure to classify success or failure with more refined distinctions is a deliberate choice. Given the time and limits of this study, it would not have been possible to investigate broad changes at their micro-level. To have done this would have been tantamount to doing a case study of each micro-change. A review of the research literature on each and every change would have been entailed and this task would have gone far beyond the scope of this study. A list of macro-changes rather than micro-changes is adequate to determine the factors associated with success or failure so long as some of the changes have met with success, others have met with failure, and the changes represent a cross-section of the educational enterprise.

Four classifications have been used to categorize changes according to the degree of success or failure attributed to the changes. The symbols used and the descriptions for degrees of success are:

4 - A change that has successfully been installed and has permeated the educational system.

3 - A change that has successfully been installed and is sufficiently present that instances of the change are obviously present.

2 - A change that has not been accepted as a frequent characteristic of schools but has left a residue that influences educational practice.

1 - A change that has not been implemented in the schools and would be difficult to locate in any school system today.

For purposes of ordering data, changes that were rated 3 and 4 were regarded as successes and changes that were rated 1 and 2 were regarded as failures. ;The data were interpreted according to this same division, although finer distinctions between ratings of 3 and 4 were made and distinctions and contrasts between those changes rated 1 or 2 were provided.

The changes were also classified according to the element in the educational system that was the focus of change. Although five possible targets for change were included in the initial processing of data, three categories were adequate to classify the changes selected. These three categories were, Instruction, Curriculum, Organization and Administration.

In one sense, all changes in education are recommended for the purpose of altering Curriculum or Instruction. The final result of all changes is found in these two areas if the proposed change is an educational change. However, if all changes were dividied into these two categories, and even these two involve considerable overlap, the very important considerations of the organization and administration of education would have been deleted. Therefore, we have classified all changes as efforts to change Curriculum, Instruction, or Organization and Administration.
The classification of changes is not always an obvious choice. One might

argue that changes in materials such as the software in media or the development of standardized tests are really changes in curriculum rather than efforts to change instruction. The writers have taken the position that if a change is planned to improve instruction directly, such as micro-teaching, or indirectly, such as new teaching materials, that the eventual target for such change in both instances is Instruction. If the content or learning experiences are the focus of change, then the change is classified as a curriculum change. A similar issue arises in the classification of changes in Administration and Organization as opposed to Curriculum or Instruction. The organizational structure is determined by the curricular or instructional goals that are to be met, but we have regarded changes that required a new unit in the educational system, such as kindergarten or junior college, or changes that required re-organization, such as the non-graded schools, as changes in Organization and Administration.

The three categories and their symbols as employed in this section are as follows:

A - Instruction

B - Curriculum

C - Organization and Administration

Each idea for change was also classified according to the source of origin of its inception. Some ideas for change originated outside of the school setting and other changes arose within the school setting.

We have regarded an origin outside of education as an agency or individual whose responsibilities include other duties and concerns in addition to educational matters. For instance, many governmental agencies

influence education but a body such as the Congress of the United States is classified as an outside source because it must be concerned with many factors in addition to education. A state department of education, a public school system or an institution of higher education is within the field of education because its primary purpose is educational. On the basis of this delineation, the changes are classified as Internal or External in origin and the following symbols are used:

I - Internal origin, within the education field.

EX - External origin, outside the educational field.

The fourth distinction made between ideas for change was a division between those that were recently proposed and those that began over twenty years ago. Recent changes were regarded as those initiated after 1950 and all other changes were listed in the pre 1950 era.

The information in Table 1 provides a description of changes that were successfully incorporated or were accepted and expanded beyond their original intent. These changes were successfully implemented, were rated 3 or 4, and their presence in today's educational system provides proof of their acceptance.

TABLE 1. CHARACTERISTICS OF CHANGES THAT WERE SUCCESSFULLY MADE IN THE SCHOOLS

Changes	Source	Rating	Focus
Ability Grouping	I	3	A
Adult Education	Ex	4	C
British Infant School	I	3	B
Carnegie Unit	I	4	C
Compensatory Education	Ex	3	B
Compulsory School Attendance	Ex	4	C
Conservation Education	Ex	3	B
Consolidation of Schools	I	4	C
Desegregation	Ex	3	C
Driver Education	Ex	4	B
Elective System	I	4	B
Environmental Education	Ex	3	B
Equalization Procedures	I	4	C
Extra-Class Activities	I	4	B
Guidance	I	4	A
Head Start	Ex	3	C
Home Economics	Ex	3	B
Individually Prescribed Instruction	I	3	A
International Education	I	3	B
Junior College	I	4	C
Junior High School	I	4	C
Kindergarten	I	4	C
Linguistics	I	3	A
Look-and-Say Method	I	3	A
Media and Technology	I	4	A
Micro-Teaching	I	3	A
Middle School	I	3	C
New Leadership Roles	I	4	C
Non-Graded Schools	I	3	C
Nursery School	Ex	3	C

TABLE 1 (Continued)

Change	Source	Rating	Focus
Open Classroom	I	3	A
Phonics Method	I	3	A
Physical Education	Ex	4	B
Programmed Instruction	I	3	A
Safety Education	I	4	B
School Psychologist	I	3	C
Self-Contained Classroom	I	3	C
Silent Reading	I	4	A
Social Promotion	I	4	C
Special Education	I	4	B
Store Front Schools	Ex	3	C
Student Teaching	I	4	A
Testing Movement	I	4	C
Tests and Measurement	I	4	A
Updating Curriculum Content	I	3	B
Vocational and Technical Education	Ex	4	B

It can be seen from Table 1 that changes were successfully implanted that altered Instruction, Curriculum, and Organization and Administration. None of these three categories were exempt from or immune to change. Ideas that were used to change or improve Instruction were fewer in number (13) than those ideas that changed Curriculum (14), or those that affected Organization and Administration (19). The changes listed in Table 1 originated within the educational system two-and-one-half times as frequently as they originated from outside the field of education. All of the changes in Instruction originated within the field of education,

one-half of the curricular changes came from inside and approximately two-thirds of the changes in Organization and Administration also came from within the field. Changes that originated outside of education tended to involve specific objectives such as Driver Training, Compulsory School Attendance, and Desegregation. Changes from within the educational field included some general changes such as Equalization Procedures, but on the whole they tended to be more specific such as Micro-Teaching, or required the knowledge of trained professionals who promoted changes such as the Phonics Method or Non-Graded School on the basis of their knowledge, research, and experience.

Governmental influence was evident in such programs as Head Start that required massive financial support or in Compulsory Attendance or Desegregation that received the support of the legal branch of the government with laws or court cases that required changes in previous procedures.

Table 2 includes information about ideas that failed to become established and are no longer present in the educational system or ideas whose original impact and scope have been diluted so that only a residue remains. All of the changes in Table 2 were rated 1 or 2.

TABLE 2. CHARACTERISTICS OF CHANGES THAT WERE NOT SUCCESSFULLY MADE IN THE SCHOOLS

Change	Source	Rating	Focus
Activity Curriculum	I	2	B
Community School	I	2	B
Core Curriculum	I	1	B
Creative Education	I	2	B
Dalton Plan	I	1	A
Flexible Scheduling	I	2	C
Mid-Year Promotions	I	1	C
Platoon System	I	1	C
Project Method	I	2	A
Sensitivity Training	I	2	A
Sex Education	Ex	2	B
Team Teaching	I	2	C
Thirty-Schools Experiment	I	1	B
Unit Method	I	2	B
Unit Plan	I	2	A
Visiting Teacher	I	2	A
Winnetka Plan	I	1	A

Changes in Table 2 include ideas that were used to alter all three categories of education--Curriculum, Instruction, and Organization and Administration. Failures in all three areas suggest that each area has resisted changes or was unable to accommodate some changes that were proposed. It is especially noteworthy to observe that 16 of the 17 failures included in Table 1 originated from within the field of education.

It is likely that more ideas are conceived by those whose primary task is education and it is not surprising that failures, as well as successes, are dominated by ideas from within the educational field. It is also probable that ideas generated outside of education did not have sufficient support to be tried in the schools or to be documented in the literature and a list of failures gleaned from the literature would be dominated by Internal origins. Of the 17 failures listed in Table 2, only 4 were efforts to alter the Organization and Administration of schools. These four changes were characterized by efforts to alter the entire school, or a considerable part of it, rather than a modification, addition, or minor change. Flexible Scheduling or modular scheduling required total change in the organization of the school. This is in sharp contrast to changes in Table 1, such as Kindergarten or Standardized Testing, which were adjunct or supportive changes that did not require overhaul of the school. The almost complete absence of failures from External sources in Table 2 suggests that when an external idea is sufficiently supported to reach the educational audience that it tends to be successful. The only failure from an external source in Table 2--Sex Education--is a change idea that has dubious public support and is also a controversial issue within the schools. A majority of the failures in Table 2 (11) left a residue, however, and either exist to a limited extent or have influenced subsequent changes. Those changes that have completely disappeared, tended to be programs that were tried on a limited scale, such as the Winnetka Plan and the Dalton Plan, and were not universally copied by other school systems.

Table 3 brings together the changes to show a contrast between those ideas that originated outside of the school system and those ideas that came from within.

TABLE 3. CHANGES LISTED ACCORDING TO INTERNAL OR EXTERNAL ORIGIN

Change	Source	Rating	Focus
Ability Grouping	I	3	A
Activity Curriculum	I	2	B
Adult Education	Ex	4	C
British Infant School	I	3	B
Carnegie Unit	I	4	C
Community School	I	2	B
Compensatory Education	Ex	3	B
Compulsory Attendance	Ex	4	C
Conservation Education	Ex	3	B
Consolidation of Schools	I	4	C
Core Curriculum	I	1	B
Creative Education	I	2	B
Dalton Plan	I	1	A
Desegregation	Ex	3	C
Driver Education	Ex	4	B
Elective System	I	4	B
Environmental Education	Ex	3	B
Equalization Procedures	I	4	C
Extra-Class Activities	I	4	B
Flexible Scheduling	I	2	C
Guidance	I	4	A
Head Start	Ex	3	C
Home Economics	Ex	3	B
Individually Prescribed Instruction	I	3	A
International Education	I	3	B

TABLE 3 (Continued)

Change	Source	Rating	Focus
Junior College	I	4	C
Junior High School	I	4	C
Kindergarten	I	4	C
Linguistics	I	3	A
Look-and-Say Method	I	3	A
Media and Technology	I	4	A
Micro-Teaching	I	3	A
Middle School	I	3	C
Mid-Year Promotion	I	1	C
New Leadership Roles	I	4	C
Non-Graded Schools	I	3	C
Nursery School	Ex	3	C
Open Classroom	I	3	A
Phonics Method	I	3	A
Physical Education	Ex	4	B
Platoon System	I	1	C
Programmed Instruction	I	3	A
Project Method	I	2	A
Safety Education	I	4	B
School Psychologist	I	3	C
Self-Contained Classroom	I	3	C
Sensitivity Training	I	2	A
Sex Education	Ex	2	B
Silent Reading	I	4	A
Social Promotion	I	4	C
Special Education	I	4	B
Store Front Schools	Ex	3	C
Student Teaching	I	4	A
Team Teaching	I	2	C
Testing Movement	I	4	C
Tests and Measurements	I	4	A
Thirty-Schools Experiment	I	1	B
Unit Method	I	2	B
Unit Plan	I	2	A
Updating Curriculum Content	I	3	B

TABLE 3 (Continued)

Change	Source	Rating	Focus
Visiting Teacher	I	2	A
Vocational and Technical Education	Ex	4	B
Winnetka Plan	I	1	A

The most obvious observation in Table 3 is the large number of changes that originated within the school system (49) in comparison to the relatively small number from external sources (14). The nature and purposes of these changes has been discussed in reference to Tables 1 and 2, but Table 3 provides evidence that the schools participate in changing themselves at a ratio of 3:1/2 to 1 compared to individuals or agencies outside of the schools.

The external ideas had a higher success percentage (93%) than the internal ideas (64%). These data suggest that when an idea has the support of outside groups and school support as well, then the success probability is high. When an idea is initiated in a school, it seems to have less chance for success.

The lower success rate of ideas that originated within the field of education should not be construed to mean that such ideas are necessarily doomed to failure because of their origin. The lower percentage is most likely due to the larger number of attempts to change or the fact that successes and failures within the field of education are reported in the literature. Failures that originate outside of education are less likely

to remain long enough to be recorded as an effort at change at the macro-level that we have used. Most of the ideas within education were efforts to alter Instruction while none of the changes that originated outside of the schools were attempts to change Instruction. The outside sources were slightly more concerned with Curriculum (8 instances) than with Organization and Administration (6 instances).

Table 4 provides a list of ideas that have been most successfully implanted in the educational system and have stood the test of time since all of them originated prior to 1950.

TABLE 4. PRE-1950 CHANGES THAT WERE SUCCESSFULLY MADE IN THE SCHOOLS

Change	Source	Rating	Focus
Ability Grouping	I	3	A
Adult Education	Ex	4	C
Carnegie Unit	I	4	C
Compulsory Attendance	Ex	4	C
Conservation Education	Ex	3	B
Consolidation of Schools	I	4	C
Driver Education	Ex	4	B
Elective System	I	4	B
Equalization of Education	I	4	C
Extra-Class Activities	I	4	B
Guidance	I	4	A
Home Economics	Ex	3	B
International Education	I	3	B
Junior College	I	4	C
Junior High School	I	4	C
Kindergarten	I	4	C
Look-and-Say Method	I	3	A
Media and Technology	I	4	A
New Leadership Roles	I	4	C
Nursery School	Ex	3	C
Phonics Method	I	3	A
Physical Education	Ex	4	B
Programmed Instruction	I	3	A
Safety Education	I	4	B
Self-Contained Classroom	I	3	C
Silent Reading	I	4	A
Social Promotion	I	4	C
Student Teaching	I	4	A
Testing Movement	I	4	C
Tests and Measurement	I	4	A
Updating Curriculum Content	I	3	B

These "permanent" or well-established changes are most often a part of the Organization and Administration of the schools. Of the thirty one changes listed in Table 4, thirteen of them changed or added to the area of school Organization and Administration. The other two categories, Curriculum and Instruction, were equally divided between the remaining changes. It appears that a change in the Organization and Administration of the school is more likely to be permanent. It appears easier for Curriculum or Instruction changes to be tried and discarded, but once the Organizational and Administrative machinery is modified, a higher degree of permanence occurs. External factors that gave rise to Curriculum changes were evident in 44% of the instances given. External origins were present in 23% of the changes in Organization and Administration and were totally absent from changes in Instruction. Thus, it appears that societal support is most noticeable in Curricular change, is evident in Organizational and Administrative changes, but changes in Instruction are left to the educator.

Table 5 includes the changes that have been classified as successful and rated either 3 or 4. However, all of these changes were proposed within the last twenty years and have not been subjected to the fluctuations and cycles that have affected the pre-1950 changes.

TABLE 5. POST-1950 CHANGES THAT WERE SUCCESSFULLY IMPLANTED IN THE SCHOOLS

Change	Source	Rating	Focus
British Infant School	I	3	B
Compensatory Education	Ex	3	B
Desegregation	Ex	3	C
Environmental Education	Ex	3	B
Head Start	Ex	3	C
Individually Prescribed Instruction	I	3	A
Linguistics	I	3	A
Micro-Teaching	I	3	A
Middle School	I	3	C
Non-Graded Schools	I	3	C
Open Classroom	I	3	A
School Psychologist	I	3	C
Special Education	I	4	B
Store Front Schools	Ex	3	C

It is premature to classify these changes as successful since they all have been initiated within the last twenty years and have not been subjected to a sufficient trial period. However, these changes tend to show the same characteristics as the pre-1950 changes that were successful. These characteristics include changes in Instruction that originate within the profession, changes in Curriculum that come from outside as well as inside the field of education, changes in Administration and Organization that can be accomodated without dismantling the existing structure. One

exception to these generalizations is the Non-Graded School. If past experience is a reliable predictor, this change is not likely to remain because major alteration of the structure of the school is difficult to induce and maintain. The only change included in Table 5 that is rated a 4 is Special Education. All other changes are rated 3 and could either rise or fall depending on their impact on the schools over a longer period of time.

The pre-1950 changes that failed to become a part of the educational enterprise are presented in Table 6. It is probable that other ideas were proposed but when changes that have failed do not appear in the literature, it is not possible to document their existence.

TABLE 6. PRE-1950 CHANGES THAT WERE NOT SUCCESSFULLY IMPLANTED IN THE SCHOOLS

Change	Source	Rating	Focus
Activity Curriculum	I	2	B
Community School	I	2	B
Core Curriculum	I	1	B
Dalton Plan	I	1	A
Mid-year Promotion	I	1	C
Platoon System	I	1	C
Project Method	I	2	A
Thirty-Schools Experiment	I	1	B
Unit Method	I	2	B
Unit Plan	I	2	A
Visiting Teacher	I	2	A
Winnetka Plan	I	1	A

None of the failures originated external to the school and only two of the failures were efforts to alter the school's Administration and Organization. Eighty-three percent of the failures were attempts to change Instruction or Curriculum and they were promoted in specific schools or in a limited number of schools. It appears that other schools do not copy a prototype. Whether the refusal to emulate other schools is due to professional jealousy, lack of leadership in other schools, or the weaknesses in the changes is uncertain. It does appear that a single school or a small group of schools that are trying to alter Instruction or Curriculum are not likely to generate universal application of their ideas.

The post-1950 changes that have failed to become included in the educational enterprise are proportional in number to the pre-1950 successes and failures, but the absolute number is only 5. Generalizations from so few instances is risky. Thus Table 7, which includes information on these recent changes, should be read with this limitation in mind.

TABLE 7. POST-1950 CHANGES THAT WERE NOT SUCCESSFULLY IMPLANTED IN THE SCHOOLS

Change	Source	Rating	Focus
Creative Education	I	2	B
Flexible Scheduling	I	2	C
Sensitivity Training	I	2	A
Sex Education	Ex	2	B
Team Teaching	I	2	C

The changes in Table 7 are all present to a limited extent as indicated by the classification of 2, but they cannot be regarded as successes. They have all been reduced in scope or purpose or have been modified and absorbed rather than continued in their original form. The common characteristics of each item is that they have been proposed as separate ideas, but each can be accomodated by blending them with existing practices. Thus it appears that these ideas have provided some new approach to an existing element and have not replaced existing practice.

Table 8 presents those ideas that have succeeded and even grown in importance or acceptance. These are the ideas that are firmly a part of the educational field and are least likely to be removed or replaced.

TABLE 8. CHANGES THAT WERE HIGHLY SUCCESSFUL AND ARE FIRMLY IMBEDDED IN THE SCHOOLS

Change	Source	Rating	Focus
Adult Education	EX	4	C
Carnegie Unit	I	4	C
Compulsory Attendance	Ex	4	C
Consolidation of Schools	I	4	C
Driver Education	Ex	4	B
Elective System	I	4	B
Equalization of Education	I	4	C
Extra-Class Activities	I	4	B
Guidance	I	4	A
Junior High School	I	4	C
Kindergarten	I	4	C
Media and Technology	I	4	A
New Leadership Roles	I	4	C
Physical Education	Ex	4	B
Safety Education	I	4	B
Silent Reading	I	4	A
Social Promotion	I	4	C
Standardized Testing	I	4	C
Student Teaching	I	4	A
Tests and Measurements	I	4	A
Vocational and Technical Education	Ex	4	B

Of the twenty one ideas included in Table 8, the largest number (10) have been changes in Administration and Organization. These suggest that after an idea for change is built into the administrative framework of the school, that a bedrock or a foundation for its continuation is established. The two changes in instruction do not directly impinge on the classroom teacher, but provide help to the preservice trainee or give the student a

different kind of instruction from a new source (a guidance counselor). The Curriculum changes all provide an expansion of the curriculum and are in response to the need to increase the choices for the student (electives and extra-class activities) or to assure that students will develop their physical potential in addition to their mental competence.

Table 9 provides information about those ideas that have become a part of education in approximately the same form and impact as intended. These ideas are classified as successes and have served the purpose for which they were developed. The initiators of these ideas probably expected them to be more universally employed than is the case, but the form and nature of these changes has remained intact and the ideas are very much alive. Instances of each idea listed in Table 9 can be found in sufficient numbers to classify the idea as a success.

TABLE 9. CHANGES THAT WERE SUCCESSFULLY INSTALLED AND EASILY IDENTIFIED IN THE SCHOOLS

Change	Source	Rating	Focus
Pre-1950			
Ability Grouping	I	3	A
Conservation Education	Ex	3	B
Home Economics	Ex	3	B
International Understanding	I	3	B
Look-And-Say Method	I	3	A
Nursery School	Ex	3	C
Phonics Method	I	3	A
Programmed Instruction	I	3	A
Self-Contained Classroom	I	3	C
Updating Curriculum Content	I	3	B
Post-1950			
British Infant School	I	3	B
Compensatory Education	Ex	3	B
Desegregation	Ex	3	C
Environmental Education	Ex	3	B
Head Start	Ex	3	C
Individually Prescribed Instruction	I	3	A
Linguistics	I	3	A
Micro-Teaching	I	3	A
Middle School	I	3	C
Non-Graded Schools	I	3	C
Open Classroom	I	3	A
School Psychologist	I	3	C
Store Front Schools	Ex	3	C

Of the 24 ideas presented in Table 9, 14 of them are post 1950 and it is too early to classify the 14 changes in this category and the 10 pre-1950 ideas with the same confidence. The ideas set forth in Table 9 cover the 3 categories of Instruction, Curriculum, and Organization and Administration. This suggests that all three of these elements do undergo change, and that change ideas directed at all levels of the educational field can survive if the combination of forces that enable a change to occur are present.

Table 10 lists the changes that were rejected or only had a residue that remained.

TABLE 10. CHANGES THAT DID NOT BECOME A PART OF THE EDUCATIONAL SYSTEM BUT LEFT A RESIDUE

Change	Source	Rating	Focus
Pre-1950			
Activity Curriculum	I	2	B
Community School	I	2	B
Project Method	I	2	A
Unit Method	I	2	B
Unit Plan	I	2	A
Visiting Teacher	I	2	A
Post-1950			
Creative Education	I	2	B
Flexible Scheduling	I	2	C
Sensitivity Training	I	2	A
Sex Education	Ex	2	B
Team Teaching	I	2	C

Nine of the eleven changes in Table 10 were efforts to change Instruction or Curriculum. These changes are characterized by an "all or none" characteristic. For example, sensitivity training is not something that one accomplishes to a minor degree. One either submits to and engages in sensitivity training or he does not - there is no in between. The same generalization could be made about the other changes in Curriculum and Instruction included in Table 10. It appears that changes that require the removal of an existing approach in order to provide for a change have a high risk for installation. Wholesale changes in Instruction and Curriculum are not likely to succeed.

Table 11 presents ideas that have fallen by the way side. It is not fair to say that all the ideas in Table 11 disappeared completely, but they are not evident in sufficient numbers to classify them as successful in comparison to other ideas included in this report.

TABLE 11. CHANGES THAT FAILED TO BECOME A PART OF THE EDUCATIONAL SYSTEM

Change	Source	Rating	Focus
Pre-1950			
Core Curriculum	I	1	B
Dalton Plan	I	1	A
Mid Year Promotion	I	1	C
Platoon System	I	1	C
Thirty Schools Experiment	I	1	B
Winnetka Plan	I	1	A
Post-1950			
None			

The information in Table 11 makes it evident that changes in Curriculum or Instruction that are employed at the local level or with a limited number of schools are not likely to be spread widely throughout the field of education. The Winnetka Plan, Dalton Plan, Platoon System and Thirty Schools Experiment all support this interpretation. A single school or limited number of schools in this instance did not provide a prototype which others chose to copy. Though some elements of each of these ideas remain, the schools have made their own adaptions to include or exclude elements of the change ideas listed in Table 11. Core Curriculum required a number of changes such as teacher preparation, materials, facilities, administration and organization, and thus too many factors had to be overcome. Whether the idea was a good one or not seemed less important than the fact that a large number of educational practices had to be overturned and there was insufficient evidence that the core approach justified such an extensive displacement of the components of the educational system.

Summary

Educational changes have been proposed during the past 75 years that were planned to alter Instruction, Curriculum, and Organization and Administration. Most of the changes came from educators but slightly over 20 percent of the ideas came from outside the field of education. Changes that came from outside the educational field were directed at the Curriculum or the Organization and Administration of the schools. Changes in Classroom Instruction always came from within the field of education. Changes that depended upon outside initiation and support and acceptance

from within the educational enterprise had a higher record of success than ideas that came from the educational field alone. Changes were also more permanent if they were a part of the Organization and Administration of the school.

Lasting changes were characterized by support in the legal, social, financial, and educational realms. Cumpulsory Attendance, Media and Technology, Guidance, and School Consolidation are all instances in which the legal, social, financial, and educational factors were either strongly supportive, or opposition was weak, and these changes became a characteristic part of the educational system. When changes originated within the school system but were diffused to only a small number of schools in proportion to the total educational enterprise, it was unlikely that the change would become permanent. The Winnetka Plan, Dalton Plan, and Platoon System are cases in point.

One of the most important elements in the presentation of these change ideas is the fact that a large number of changes have been proposed and that many of these changes have been promulgated. Whether changes have been made as rapidly as social conditions required or whether the changes were the most appropriate ones to make can be debated. But changes have taken place in all segments of the educational system. Considering the massiveness of the educational enterprise in terms of enrollments, number of teachers, buildings and facilities, relationships to complex legal and legislative bodies, and the required relationships between institutions of higher education and the elementary and secondary schools, the public school is perhaps far more responsive to change than is generally conceded.

CHAPTER FOUR

OTHER CONSIDERATIONS

Behind every educational change, or decision not to change, is a complex assortment of variables. Some of these variables are within the field of education, some are outside of the educational field, and all of them have the potential to support change, resist change, or remain neutral about change. Because of the frequency of proposals for change and their successful or attempted implementation, the educational field is constantly in transition. At any given moment educators receive information from research, are under the influence of local, state, and federal governments, are subject to pressures from organized groups, and confront issues and solve problems that must be settled to maintain the educational system.

Since it was not within the scope of this study to account for the multitude of minor and major factors that relate to the numerous changes in education, we selected broad categories which included these variables and classified macro-changes within them. The selection of broad changes and designation of general categories enabled us to quantify factors that related to educational change. This decision ruled out consideration of factors typically studied in educational research. For example, the addition of special education has been counted as a change, but this broad category ignores the score or more of changes that have been made as a result of research in special education itself. Consequently, the role

of research in educational change is blurred in this report. Our approach also obscured other changes such as the elements that comprise the educational system, the influence of professional and extra-legal organizations, court decisions, the role of the federal government, and the role of society. Though an analysis of educational change that provided details about these additional elements is far beyond the scope of this study, we cannot ignore these additional elements completely. Before recommendations made on the basis of our findings can be given, we need to supply further clarification and finer distinctions of the categories we employed. The purpose of this chapter is to provide that clarification and to make the necessary distinctions.

Factors Within Education

The entire question of why changes are undertaken is raised when an analysis of changes is undertaken. If the social context within which the school functions remained constant and the students, teachers, and other educational personnel did not change, then changes would be unnecessary if the schools were fulfilling their obligations. Such stagnation is not the case and, therefore, change is a necessary part of the educational system if it is going to keep pace with the changing times. The issues about change within the school raise such questions as: Why do we need to change, what factors should be changed, what basis for change should we turn to, who should determine the best changes, what are the restrictions that prevent change, and what are the requirements and regulations that mandate change?

There are four areas within the field of education that bear on the answers to these questions and are especially influential in the determination of educational practice. These four areas also cut across changes and cannot be regarded as the basis for any particular change, but are factors that affect the entire spectrum of educational practice. These four areas are: (1) Educational Research; (2) School Personnel; (3) Educational Commissions and Committees, and (4) Professional and Extra-Legal Organizations.

Educational Research The contributions of research to educational progress is indisputable. Educational changes may be stimulated by social needs, school problems, constitutional enactments, or court orders as well as by research, but those who promote changes frequently take into account the information provided by educational research. Research in education has not been as spectacular as the research in some other fields but notable advances have been made. George Mouly summarized the developments in educational research over the last few decades by stating that "We have attained a much better understanding of the child as a developing organism and as a learner, of his learning process, and of the role of education in promoting his maximum growth." (P. 387) He continues his comments with additional praise about gains in curriculum, teaching methods, classroom organization, knowledge about the effects of experience, knowledge about motivation, and awareness of pupil's interests, needs, goals, and purposes. We simply cannot overlook the educational research that has increased the knowledge base on which changes and developments in the school have relied for solutions to school problems.

The Encyclopedia of Educational Research, Handbook of Research on Teaching, Review of Educational Research, and Education Index list numerous titles and descriptions of research that have been reported in the literature. The large number of investigations revealed in these and other sources illustrate that education is active in conducting research and testing the assumptions on which educational practice is based. Of course, some of the research is inadequate, inconclusive, or contradictory which suggest conditions and problems calling for further research. More research is necessary if the progress in education demanded of the educational profession is to be made. By reflecting on the research that has been conducted and the changes that have been successful, a long list of research contributions can be provided. For example, the measurement of intelligence by Simon and Binet has contributed to the standardized testing procedures of the schools, the development of ability grouping, the behavior of guidance counselors, and the ways schools are organized and administered. The measurement instruments developed under the supervision of Ralph Tyler, that grew out of the Eight Year Study and the study of Experimental and Traditional School practices made by Wrightstone in New York City raised questions about the adequacy of the schools and means of measuring that adequacy. The Genetic Studies by Gesell, Ilg, and Ames, the concept of Developmental Tasks by Havighurst, and studies of the Organismic age by Olson have centered on growth and development and provided educators with a basis for action in dealing with educational concerns. The early work of Thorndike and Rice that started educational research as an influential force, the experimentation of Kurt Lewin and his associates with social climates and their influence on learning, and the Genetic Studies of Genius

by Terman represent a small sample of the abundance of research in education. One would be hard pressed to list a school practice or educational change that did not include some reference to research findings as an influential force in the decisions made in regard to that school practice or change.

School Personnel Individuals who manage the daily responsibilities of operating the public schools are instrumental in determining what should be done, what will be done, and how it will be accomplished. The school personnel is crucial in the initiation of change and essential in promoting change. Whereas the educational researcher addresses his efforts to the solution of such empirical problems as the educational progress of younger vs. older students in a given grade or demographic factors as they relate to learning, the person who solves molar school problems usually settles on questions that must be answered to enable the school system to function. When these problems are solved, they often result in changes in schools, and thus represent a source of change within the educational arena.

The school personnel includes classroom teachers, supervisory and administrative officials who service specific schools, superintendent of schools and his staff who assume responsibility for district-wide decisions, and officials in the state departments of education whose primary function is the management and leadership of the state system of public education. All of these levels of educational personnel must be taken into account in the analysis and diffusion of change.

The problems that face the public schools must be solved within legal and constitutional constraints and in such ways as to organize resources to maximize learning. Problems must be solved at the state level in such areas as school finanace, state-wide testing programs, or universal gradu-

ation requirements for high schools. A school district faces questions about school boundaries, placement of teachers, local tax rates, and curricular issues. A given school must arrange the daily schedule, operating procedures, attendance reports, and use of supplies and materials. An extensive list of issues and their solutions could be developed by any school administrator or experienced teacher that would contrast the different ways these problems have been handled over a period of time. Though these problems and their solutions might be regarded by some as no more than "housekeeping" chores, they are critical factors in the operation of the schools and make a major impact on the learning that takes place.

Consider the difference in evaluation of students in a school that issues letter grades each six weeks, another that issues grades each nine weeks, another that handles reports on pupil progress through parent conferences, and another that uses a pass-fail evaluation of each subject that is graded. The decision to evaluate pupils according to one procedure instead of another makes a difference in the nature of the report, the nature of the work assigned to pupils, the kind of records the teacher collects, and the amount of time devoted to the evaluation of pupils. The solution to the problem of student evaluation has broad implications for the educational program and the behavior of teachers. And the decision of the procedure used will be made by the personnel in the school and that responsibility places them in a significant role in the determination of school practice.

Similar illustration can be provided that relate to textbook selection, non-teaching duties, frequency and substance of faculty meetings, extra-

class activities, bus schedules, sponsorship of activities, length of class periods, supervisory arrangements, procedures for handling discipline problems, and content of cumulative records.

New ways of doing old tasks or new tasks that are suggested for the schools often pose a threat to school personnel. The personnel is not infrequently hesitant to change and skeptical of innovation. Their feelings are understandable since changes cast doubt on the new roles of personnel, suggest that previous methods of dealing with the issues at hand were inadequate or failures, and may not offer a guarantee that the new idea is any better than the old. The personnel is similar in attitude toward change to personnel in any other social institution, and their reluctance serves as a safeguard against useless or dangerous change. Considering the important role educators assume in carrying out change and their hesitancy to accept and promote change, the difficulty of managing deliberate change is obvious. Without belaboring the point, it is apparent that (1) changes in school practice require the support of school practitioners, (2) the personnel represent a wide variety of views, levels of responsibility, and degrees of influence in a complex system, and (3) changes in school practice tend to be viewed with skepticism and resistance.

The task of changing the school rests on the ability of those who promote change to convince the educational personnel that the change is desirable and deserves their support. Despite the tendency to resist change, the extensive list of changes provided in this report attests to the plausibility of identifying changes and successfully implanting them in the schools.

Recommendations from Commissions and Committees When the Committee of Ten issued its report in 1893, the report represented the first major effort to influence the public schools through a national committee. Following that report, a series of recommendations arose from newly formed committees dealing with such mattera as articulation of high schools and colleges, correlation of studies in elementary education, and economy in education. During the period included in this study, a number of national committees and commissions initiated changes in the public schools. Among the most significant of these committees have been the Educational Policies Commission and the Commission on Reorganization of Secondary Education. A multitude of major committees have issued statements about education after deliberation over given issues, but these two commissions typify the effort within the field of education to influence change from the national persepctive.

The Commission on Reorganization of Secondary Education issued its report in 1918 and is best known for its statement of the 7 Cardinal Principles. These principles gave public schools impetus to broaden the curriculum and create educational opportunities that spread beyond the fundamentals of academic learning. This report had as much to do with the broadening of the schools'role, frequently into areas that the schools could not possibly expect to have much success, as any other single report. Even today, newly published books include an account of this committee and it is not uncommon for educators to use the exact words or synonyms for the 7 Cardinal Principles in describing the mission of the schools. These principles included attention to health, fundamental processes, worthy home membership, vocational efficiency, civic participation,

worthy use of leisure time, and ethical character.

The Educational Policies Commission of the National Educational Association, formed in 1936, issued its first report in 1937, and terminated as a commission in the 1960's. During the 32 years of its existence reports were issued that included Education and Economic Well Being in American Democracy (1940), The Education of Free Men in American Democracy (1941), Education for All American Youth (1944), American Education and International Tensions (1949), Higher Education in a Decade of Decision (1957), Contemporary Issues in Elementary Education (1960), Education and the Disadvantaged American (1962), and Education and the Search for Equal Opportunity (1965).

Whether one views the influence of the National Commission on Reorganization, the Educational Policies Commission, or the hundreds of other committee reports that have been issued, it is not possible to discount the relevance and influence on the schools when the changes in curriculum, national priorities, school organization, methods of teaching, preparation of teachers, and school purposes are compared to the substance of the reports that have come from these commissions and committees. They represent large groups of educators and, though they speak for themselves, they speak to the issues that concern the educational field, make recommendations that receive a public hearing, and provide leadership to the decision-makers in the public schools.

Professional and Extra-Legal Agencies. Within the field of education there are groups or agencies whose influence is most often felt in a specialized area of knowledge or in a particular aspect of the operation of the schools. Professional organizations with specialized concerns, for

example, are represented by the departments of the National Education Association. The Association of Teacher Educators has been concerned about the quality of the student teaching experience and the relationship between public schools and higher education in the arrangement of this experience since 1920. And organizations devoted to the study and dissemination of information about selected issues are represented by Phi Delta Kappa and Pi Lambda Theta. The sum total of the impact of these organizations is not easily assessed if a relationship between their efforts and school practice is drawn. In some instances the relationship is obvious as in the case of the National Council of the Teachers of Mathematics and the emergence of New Mathematics in the elementary schools. Support for the movement from this group constituted an important part of the success of changes in elementary school mathematics. Similar changes could be traced to the teachers of social studies in the development of the inductive method and the teachers of English in the spread of the linguistics approach. The weight that swings the balance between success and failure in the inducement of change may never be accurately assessed when many elements are adding their position to the issue. But if the success of an idea requires support from several sources, then the support that can be provided from the specific professional body that is aligned with the element that is the target of change should not be overlooked. It is inconceivable, for example, that specialists in media and technology would promote the use of language laboratories without obtaining the support of the teachers of foreign languages and seeking help from organizations that represent the teachers of foreign languages. Specialized professional organizations hold annual meetings, publish research and

reports that relate to their speciality, and influence decisions in education; their role and power is sufficiently obvious to urge that they be taken into account in the promotion of change and that they be listened to when they recommend changes.

Extra-Legal Organizations. Extra-legal voluntary organizations are the accrediting bodies that classify institutions according to their ability to meet selected standards. The Evaluative Criteria applied to high schools, the Evaluative Criteria that are being used for Junior High Schools and Middle Schools, and the criteria applied by the National Council for the Accreditation of Teacher Education are illustrations of documents that specify standards required for accreditation. The criteria applied to accreditation decisions are revised periodically and constitute a response to change that is forced on those schools that wish to seek or retain accreditation. Accreditation has become sufficiently important to bring pressure on institutions to seek accreditation as a means of satisfying their supporters, whether they be taxpayers or alumni, to qualify for the privileges of accreditation, and to force changes that might otherwise be difficult to promote. The standards for NCATE accreditation have recently been revised to measure products as well as processes and this represents a change from the previous standards that based accreditation, primarily, on the process employed in the preparation of teachers. The 4th edition of the Evaluative Criteria for the Evaluation of Secondary Schools, published in 1969, deleted "Core Program" because little use was made of this section in the 1960 edition; it no longer lists classical and modern languages as separate areas, and has added an additional section on "Special Education." These changes represent changes in the high

school program or represent changes that have come about from other sources and are now reflected in the revision of the criteria. Accrediting bodies are in a privileged position to alter school programs because their status is sufficiently secure that schools voluntarily submit to the regulations they impose and yet they are free from the restrictions that come from the usual public pressures that elementary and secondary schools experience.

Specialized professional organizations and accrediting agencies represent another dimension of the components that exist within the educational realm. They both serve large portions of the educational field and are both instrumental in the establishment of changes in the fields they represent.

Factors Outside the Educational Field

The school must satisfy the elements within the educational arena but it must also respond to elements that are outside of its domain. One of the most obvious external restrictions on the school is the requirement that it adhere to state and federal constitutional requirements. Another important factor that determines school practice is found in the court decisions that rule on educational practice. The third external element included in this section refers to the pressures that society brings to the school to respond to its interests. These three elements are closely related to each other and, at times, it appears that the school serves as the vehicle to test the relationships among the people, the constitution, and the courts. Whether the school is the intended target for controversial matters or an innocent bystander who happens to provide a

convenient location for issues to be settled seems to vary with the issue at stake. The intertwining of these three elements and their effect on the school serves to emphasize the importance of the educational system in this country and the interlocking relationship the public school has with the society and the rules and regulations that govern that society. The specific role of the federal government, the courts, and society in the promotion of change has not been made clear in the analysis of the changes in this report. It is the intention of this section to clarify this relationship and to explicate the category "External Origin".

The Role of the Federal Government. Prior to 1900, federal legislation responded to the needs of the educational system with ordinances and acts that provided land for the establishment of educational institutions. And no direct control was exercised over the use of these lands. In more recent times the government has expanded its role and the issue of direct or indirect participation has become a central issue. The role of the federal government in education has traditionally been a role of non-intervention. The states have viewed the responsibility for the educational system to be theirs and we have had a decentralized system of public education. As differences between state systems became more obvious, as the population became more mobile, as problems for a given state burst the limits of its ability to cope with its burden, and as questions arose about state constitutions and school regulations violating federal guarantees to individuals, the entire issue of federal and state roles in the educational system became murky and controversial.

Direct relationships and controls by the federal government includes those schools established for native Indian children, dependents of mili-

tary personnel stationed overseas, federally controlled schools in territories such as the Panama Canal Zone, or in federal programs that bypass state departments of education and provide for contracts with local educational agencies.

Indirect support and shared control can include the allocation of funds on the basis of some formula for shared costs, the granting of funds under a given set of guidelines or stipulations, or issuing of funds for the school to use according to its own local needs. We have numerous examples of the federal government alloting funds with the requirement that the state provide some form of matching support. For example, the Smith-Hughes Act of 1917 extended the study of agriculture, home economics, and industrial subjects to the secondary school. All buildings and equipment under this Act were to be provided by funds from the state or local level. The George-Barden Act of 1946 expanded the Smith-Hughes Act and required a 50 percent matching of state funds.

The government has also provided emergency funds to enable local school districts to cope with problems that were not their own creation. These funds do not require specific matching of federal funds as, for example, provided in the Federal Assistance Laws of 1950. Serious financial problems troubled communities where a large increase of federal employees, as in the case of military bases or federally dependent industries, increased school enrollments without increasing the tax base. Laws were passed that provided for financial assistance to these communities to offset the lack of tax money to support their increased school enrollments.

Another possibility, known as revenue sharing, removes federal

restrictions from financial support and is comparable to unrestricted alumni donations to their alma mater. Without attempting to discuss the issues in revenue sharing, the point made here is simply that the financial influence of the federal government can be managed in a variety of ways, direct, indirect, and unrestricted and the recipients can be state departments of education, local schools systems, institutions of higher education, or specific programs such as vocational education.

The consideration in this report is not so much what the federal government can do to affect school practice but what the federal government has done. In this respect, it is quite clear that the federal government has been an influential and strong force in the determination of school practice and programs. Most of the support of public education by the federal government has come about in more recent times and a brief recounting of this support underscores the strong role the government has played. In higher education the major support from the federal government has been offered through the following acts: Bankhead-Jones Act (1935), National Defense Education Act (1958), Higher Education Facilities Act (1963), and Higher Education Act (1965). Vocational Education has received support for over a century in various forms, but legislation within the time period of this report included: Smith-Lever Act (1914), Smith-Hughes Act (1917), Vocational Education Act (1946), Federal Civil Defense Act (1950), National Defense Education Act, Title VIII (1958), Manpower Training and Development Act (1962), and Vocational Education Act (1963).

Elementary and Secondary schools have recently been singled out as deserving special assistance to enable them to help the nation assume

certain responsibilities. Some of this legislation has included: Lanham Act (1940), Federal Assistance Laws, P.L. 874 and P.L. 815 (1950), National Science Foundation (1950), National Defense Education Act (1958), Clubs for Boys and Girls Interested in Science (1951), National Foundation on the Arts and the Humanities Act (1965), Elementary and Secondary Education Act (1965) and Elementary and Secondary Education Act Amendments (1967).

Additional programs in Adult Education, Teacher Education, special services such as the school lunch program, and assistance to individuals through G.I. Bills add to the role that the federal government has assumed in support of education. A series of questions could be raised in regard to the administrative machinery for the management of federal support, the question of general versus categorical support, and the issues of temporary or continuing grants, but if we look at the changes in the schools and the nature of school programs today, the federal government has made a major difference throughout the entire educational system.

The Role of the Courts. Laws have been passed and educational policies have been established that eventually have come to the courts to be challenged. Because of the complex arrangements of state and federal laws, and the variety of policies that have been employed in the school, it is not surprising that the courts have played a central role in determining the actions of the school. Though courts may not be regarded as forces for change in the educational arena, the decisions handed down by the courts have far-reaching impact on whether the school will continue certain practices or must alter them. A brief review of the areas in which legal decisions have been rendered and examples of some of the

changes in the school will serve to illustrate the role of the courts in relation to school practice.

Laws have been passed or court decisions have been given in such areas as the constitutional and legislative establishment of education, the scope and quality of education, the responsibilities and rights of teachers, school administration, responsibilities of state educational agencies, freedom of religion and separation of church and state, public financing of nonpublic schools, and equal opportunity and protection under the law.

Constitutional and legislative establishment of education has led to the individuality of each state in establishing its educational system. All states have made provision for education in their state constitutions; they have made laws in regard to the financial support of schools, and have established school districts and their reorganization. The states have been established as the unit on which our educational system is based. The states see their role as autonomous to the federal government and view the school districts within the state as agencies of the legislature that have only the powers granted to them by statute.

The improvement of education has been generated through laws that deal with minimum requirements for schools in such areas as facilities, curriculum, textbooks, and libraries. State laws require minimums in regard to facilities such as the site, buildings and their construction, lighting, heating, ventilation, and equipment. They also cover teacher qualifications, organizational requirements (length of school year or school day), hygiene, safety, and community responsibilities. Laws in the field of curriculum in some states require the teaching of the ill effects of alcohol and narcotics, and courses in U. S. Constitution,

physical education, U. S. History, physiology and hygiene, geography, reading, and spelling to mention a few.

Issues about textbooks center on questions about the provision of free textbooks, the selection of books, and the frequency of changing textbooks. Laws and court actions have dealt with the establishment of school libraries and relationship between school libraries and libraries that might be of general benefit to the community at large.

The responsibilities and rights of teachers have focused on teacher certification, employment conditions, laws for minimal salaries, collective negotiations for public employees, competition among organizations, and liability for negligence.

The administrative services that schools provide have been the target of laws and court actions as they apply to compulsory attendance, transportation, school food services, school finance, policies, rules, regulations, and legal services.

Laws have been tested in the courts about the separation of church and state in education on the issues of rights of parents, rights of students, released time, morning exercises, religious dress, and the use and rental of buildings.

Equal opportunity and protection under the laws in education has led to court cases involving charges of discrimination, segregation, and civil rights.

Laws and court cases can be documented that have made a difference in consolidation of schools, attendance regulations, transportation of pupils, required subjects, and teacher qualifications and most other aspects of the school program. Before advocating any changes that may tread on constitutional, legislative, or court statutes and rulings,

advocates of change would do well to ascertain the legality of their proposals or the probability that the courts will support their proposals if the changes are likely to be challenged in a court of law.

Society. Society is sometimes regarded as the body for whom the programs and policies of the school are designed. But the term "society", used here, is not meaningful unless it is defined in terms of the spokesmen or organizations that claim to speak for it. We consider "society" to be all agencies or individuals, except those within the field of education, and the constitutional or legal determinants of school practice. Such a definition includes organizations like the labor unions, the Council for Basic Education, professional organizations that represent other professions such as law or medicine, service clubs, foundations, and individual spokesmen who marshall sufficient backing to make inroads into the educational field. We do not regard society, in this sense, necessarily to be hostile or friendly to education; it is simply another factor that must be recognized if planners are to be realistic about factors that determine the success or failure of ideas for change. Some changes, such as compulsory education and driver training, have been incorporated into the school with the active support of some element of society. Other changes have been attempted but have failed to become firmly established, such as sex education, when society did not give strong approval.

During transitional periods when the school considers changes that directly affect a large part of society, pressure groups may arise to influence the decision which the schools are attempting to make. The progressive education movement stimulated reaction from society that

questioned the permissiveness of schools, some elements of society opposed German as a foreign language in the schools during and following World War I, the look-and-say advocates were bombarded with phonics proponents. in the early 1950's, courses about communism met with public resistance when efforts to include such courses were made, the intrusion of vocational education on the apprenticeship procedure was opposed by labor unions, and the pressure groups that have formed to combat or support the variations of desegregation policies are legion.

It is difficult to predict when society will rise in support or opposition to a proposed change, or if it will rise at all. It appears from the changes that have been attempted that moral indignation, financial stress, and personal inconvenience, are most likely to stimulate groups within society to react to changes in the public school.

Chapter 5

Conclusions

These conclusions are based on information derived from the data on changes, the realities of the field of education, and from theories of change. Planned change should be based on a combination of past experiences, current theories, and careful analysis of all aspects of the proposed change in relation to the characteristics of the field of education. Our conclusions and recommendations encourage such an approach.

No major aspect of the educational system has been exempt from change during the past 75 years. Curriculum, Instruction, and Organization and Administration have all changed during this period of time. Whether changes have been sufficiently rapid to meet the problems they were designed to solve or whether they were premature is another matter, but there is ample evidence that no element of the educational system is too sacred to be altered.

About 75 percent of the changes studied in this report were successfully implanted. The 25 percent of the ideas that failed, and other failures that were thwarted before they received recognition in the literature, suggests that enough ideas for change have succeeded and enough have failed to cast doubt on our current ability to predict success or failure. At the present time there is no "sure thing" in planning educational change. Regardless of how optimistically the planners of change may be about their plan, they should anticipate resistance. And resistance

arises regardless of the strong support an idea for change may have. Changes mandated by courts, changes supported heavily by financial investment, and changes supported by influential groups have, under some conditions, failed to become part of the educational system.

The nature of the school system requires that those who must implement changes be persuaded to lend their support. The educational system includes classroom teachers, school administrators, officials in state departments of education, and many others who represent different degrees of power and influence. They must be recognized and included in efforts to bring about educational change. The school system also includes financial support, legal backing, constitutional provisions, existing facilities, buildings, sites, and a large investment in other necessary elements. Because of these many factors, changes that harness this massive educational enterprise, rather than conflict with it, are more likely to succeed. The existing school system, rather than alternatives, is the best place to attempt change if the effects are to be widespread.

Major changes in education are too complex to reduce all efforts to produce and diffuse change to a single formula. But the conclusions and recommendations that follow should serve as guides to those who attempt to promote change.

On the basis of the data obtained in this study, the following statements seem warranted:

1. Changes in methods of Instruction are apparently more difficult to make successfully than changes in Curriculum or Administration.

2. Changes in Instruction are most likely to originate within the educational profession. In no case in the past did a successful change

in Instruction come from outside of education. Changes in ways of teaching and organizing instruction are neither the result of legislation nor social pressure, but rather the outcome of professional wisdom and research. This is attributable partly to the fact that the teacher's behavior in the classroom is shaped by factors considerably removed from social concerns, partly to the stability of teaching patterns, and partly to the intellectual character of teaching about which the public has little, if any, information.

3. A change that requires the teacher to abandon an existing practice and to displace it with a new practice is a high risk. If the teacher can follow the innovation without giving up his accustomed ways, the innovation is likely to succeed. If teachers must be retrained in order for a change to be made, as in team-teaching or non-graded schools, the chances for success are much reduced unless incentives to be retrained are provided as in the case of NSF support and certification requirements for the teaching of new mathematics.

4. General curricular expectations by society are most likely to center on broad needs such as environmental education or safety.

5. Specific curricular changes such as the establishment of the elective system or extra-curricular activities are initiated often from within the field of education. Successful changes in Curriculum can originate from within education or outside of education. Neither point of origin monopolizes ideas for curricular change.

6. Curricular changes that represent addition of subjects or updating the content of subjects are more permanent than changes in the organization and structure of the curriculum. Efforts to change the

curriculum by integrating or correlating the content, or creating new category systems into which to organize the content, are taken at great risk. Complete or considerable displacement of an existing curriculum pattern is not likely to be permanent even if the faculty initially supports the change. This can be attributed partly to cognitive strain on the faculty, partly to upsetting the expectations of pupils and consequent parental distrust, and partly to the mores of the faculty which tend to become stronger when threatened by change.

7. Changes in the curriculum that represent additions such as new subjects or changes in the substance of subjects can be made most securely with social support such as legislation or organized interest groups. The failure of curricular changes to be permanent is to be attributed either to lack of social support or displacement of the existing curriculum pattern. If school authorities are successful in finding social backing for the addition of a subject to the curriculum, for example, the change can be made with little risk of failure. On the other hand, if social opposition is pronounced, the probability of the change not being made is very high, or if it is made, it is likely not to persist.

8. Efforts to alter the total administrative structure, or any considerable part of it, or to make changes that entail such reorganization are likely to be unsuccessful. Plans to make such changes are made at considerable risk of failure.

9. Changes that represent additions or extensions of the educational ladder such as junior college or nursery school are more likely to be fast than changes that entail general modifications of the administrative organization such as flexible scheduling.

10. The lack of a diffusion system will lead to abortive change. A change initiated in a particular school, in the absence of a plan for diffusion, no matter how loudly it may be acclaimed, is not likely to become widespread or to be permanently entrenched in the school in which it originated. The Winnetka Plan, Dalton Plan and creative education are examplars of this principle.

11. Changes that have the support of more than one critical element are more likely to succeed. Compulsory education with legal, social and educational support did not have to overcome as much resistance as it would have if educators alone had given support to the change.

12. Changes will be resisted that require educational personnel to relinquish power or changes that cast doubt on their roles, as in the case of consolidation and redistricting of schools. Accompanying legislative, legal, and fianacial impetus increases the probability of success in such changes.

13. Changes that appeal to the democratic principle of "worth of the individual" tend to be well received. Guidance programs and indvidualized instruction exemplify this principle.

14. The weight of the cognitive burden is one of the significant factors that helps to determine the permanence of a change. If the cognitive load is light, other things being equal, a change is more likely to persist than if the burden is heavy. The weight of the burden in proportional to the number of factors entailed by the change. For example, if the total administrative structure or any considerable part of it is the object of change, the chances for successful innovation will be very low. The same observation can be made about changes in methods of instruction of curricular changes.

15. The initiation of change in a school may come from a number of sources -- professionals, social groups, governments, and so on -- and they may arise from research as in the case of ability grouping and programmed instruction or from ideologies as, for example, the core curriculum, and from professional wisdom, as in the platoon system. The source of the change appears to have far less to do with its staying power than the kind of support the change receives and the strain it places upon the school personnel. The core curriculum and creative education are constant drains on the time and energy of a faculty and they consequently tend to disappear even though each one has enjoyed faculty support. On the other hand, international understanding tends to be more persistent as a curricular change. It requires far less time and energy of the teacher and has enjoyed no greater support from the faculty than either the core curriculum or creative education.

16. The federal government, as a change agent, will have optimum success if it takes certain facts into account. In the first place, the government acts in two ways. It passes enabling legislation empowering various federal agencies to do specified things to attain certain goals. In the second place, it acts through the courts to interpret laws, to establish norms, and to order certain actions by school officials. The programs of the USOE are based largely on enabling legislation. In the development, inauguration, and supervision of its programs USOE is subject to the same conditions of success -- set forth above -- as any other change agent--foundation, pressure group, commission, individual, or what not. For example, its efforts to induce changes in methods of teaching are

likely to be less successful than efforts to change the content of the curriculum or to extend or modify the educational ladder; its efforts are likely to be more successful if it has the support of commission recommendations, organized groups, and professional personnel.

17. The data set forth in this report are too gross to provide insight into the sort of situational analysis that successful change entails. More refined data can be secured by intensive case studies made along the lines suggested in appendix B. It is recommended that a few well chosen case studies be made to explore the underlying variables whose manipulation and control can give a change agent greater assurance of success.

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APPENDIX

Appendix A

Glossary of Changes

Ability Grouping The practice of separating the more intellectually gifted from the less gifted so each group can proceed at its own rate. A wide variety of ability grouping plans designated "XYZ ability grouping," gained momentum after World War I when the psychological testing movement gave educators fresh confidence in their ability to classify students according to ability. To alleviate the problem of retardation caused by extensive heterogeneity in the graded classroom, the "XYZ" plans centered on curriculum readjustment; children in a given grade were separated into ability groupings to match a curriculum with a child's ability to progress. Criticism was leveled at the undemocratic nature of divisions based on IQ and achievement measures alone. A few educators proposed insightfully, that no true homogeneity existed across abilities in any group because no individual child was homogeneous in all abilities; hence, group homogeneity could only be achieved through regrouping as activities changed. As a result of much criticism, ability grouping based primarily on IQ, and popular from 1920-1940, is currently viewed as obsolete. Cognizance of the heterogeneity in each child's abilities eventuated in what is currently considered "ideal" ability grouping and is sometimes termed "individualized instruction": a plan whereby learners are grouped homogeneously for skill acquisition determined by measured competence in each skill. Such a plan is intended to ensure learning success for each child in all academic skills irrespective of measured IQ. (4: 378)

Activity Curriculum A child-centered curriculum developed around 1900 which had as its theoretical base the idea that the important thing in learning was not so much the content learned as the general mental power developed. It was based on the dynamic or functional psychology of William James and E.L. Thorndike which stated positively, as a matter of empirical observation rather than philosophical speculation, that the child at birth was organically possessed of a sizable list of instincts and impulsees. The logical conclusion was that curriculum should be designed to give expression to these assertive capacities, and should be organized in terms of the activities of children themselves. An early advocate of activity curriculum in America was Colonel Francis W. Parker. Later, at the turn of the century, John Dewey implemented an activity based curriculum in his experimental school at the University of Chicago. Thus a traditional subject matter such as reading was not taught as an independent subject but as a means of acquiring information. Dewey's curriculum gave a central position to activities such as cooking, sewing and carpentry. All subject matter was taught in conjunction with the activities. The activity curriculum clashed vigorously with the traditional, logically organized subject matter curriculum. Dewey responded to the controversy in a brochure entitled The Child and the Curriculum published in 1902 in which he stated that the child-centered or activity curriculum and the subject-matter curriculum had a common denominator: experience. Both were essentially activity curricula; the point was how to organize it. The subject matter had to be incorporated in an appropriate form into the child's experience at a given stage and phase of his development.

To date the romanticists, who hold a sentimental regard for children's needs and the essentialists, who insist that logically organized subject matter should reign supreme, remain at opposite poles while the moderate educators have heeded Dewey's analysis. (5: 343)

Adult Education The purposeful effort toward the self-development of adults, conducted by public or private agencies such as adult schools, extension centers, settlements, churches, clubs, and Chautaugua associations. Included is the provision of any kind of general, cultural, or practical education directed toward such special subjects as the following: citizenship, child welfare, farming, health, industrial relations, art, literature, and science. Participants are usually beyond compulsory school age and attend classes on a part-time basis. Adult Education is considered to be the fifth level of the American Educational system--the natural culmination of pre-school, elementary, secondary and higher education. (10: 232)

British Infant School Movement The Infant School is the lower division of the primary school in England which serves pupils from 5 to 8 years of age. The BIS movement is an outgrowth of a "tradition of revolution" in these infant schools since 1950. The main feature of the movement is a genuine commitment to informal, child-centered education. Concepts of organization and instruction which charaeterize the movement are the integrated day (no class lesson based on presecribed time allotments, rather, organized learning centers are arranged for general activity, science and mathemetics, visual arts and reading and language arts);

(b) vertical grouping - across ages; (c) education for thought process development - based on Piaget's concepts of cognitive development. Progress of the movement has been facilitated by, (1) freedom of school personnel, particularly teachers, to determine curriculum; (2) government educational officials' role changing from "inspector-evaluator" to "advisor" and (3) insights from Piagetian psychology in the shaping of English educators' concepts of children's learning and motivation. Additional characteristics of the schools are deemphasis of traditional pupil evaluation, a dedication of school facilities to self analysis and continued improvement, encouragement of teacher initiative and judgment, greater value on development of problem solving strategies, and a general emphasis on process rather than product. A government sponsored study of early education in England known as the Plowden Report (1967) has since directed the attention of a number of American educators to the BIS movement. Evidence of open education in the United States based on BIS is symbolized by the Vermont Design for Education and the Head Start follow through plan for "Continuing Growth" presented by the Education Development Center (Newton, Massachusetts). Both plans have developed since 1960. (15:263)

Carnegie Unit The system of units or credits, begun in 1900 by the Carnegie Foundation for the Advancement of Teaching, the definition of which formed the basis of practically all academic bookkeeping in the twentieth century. This defined a unit as a course of five periods a week throughout an academic year. The Carnegie Unit is basically a standard of measurement for describing the secondary school subject matter pattern that comprises the entrance requirements of a college. Assuming

16 units of work in a four year secondary school pattern enables secondary schools organized on any other than a four year basis to estimate their work in terms of the unit. Based on the Committee on College Entrance Requirements report in 1899 which recommended that "any piece of work comprehended within the studies included in this report that has covered atleast one year of four periods a week in a well-equipped secondary school, under competent instruction, should be considered wotthy to count toward admission to college." (18: 587)

The Community School The idea of a community school has been current since the beginning of the century. It was Dewey who said the school was, or should be, an "embryonic typical community." It was a wide-spread concept in the 1930's and has recently been revived through the work of the Mott Foundation in Flint, Michigan, and on the international front through the Fifty-Eighth Yearbook of the National Society for the Study of Education. The conception of the Community School consists in the use of the school to promote community life as well as using the community activities and problems to educate the youth. (30: Part II)

Compensatory Education A term coined by President John Fischer of Columbia University to refer to those educational programs which attempt to improve the educational opportunities and eliminate the deficiencies that some students bring to the classroom. Some programs, such as speech correction, consist of a single activity while others, such as Head Start, encompass a sequence of experiences and constitute an entire program. Compensatory education implies that schools shall provide necessary

stimuli to make up for differences in pupils' experiences and opportunities. Federal and state funding of compensatory education projects such as Great Cities Project, Speech Improvement Project, Listening Skills, Head Start and others has been an attempt at eliminating educational deficiencies. The greatest impetus for growth of such programs from 1960 to 1970 grew out of the Civil Rights legislation and the accompanying changes and demands wrought on the American public system of education. (13: 994)

Compulsory Attendance The first state committment to universal schooling was evidenced in 1852 by Massachusetts, the first to pass a compulsory attendance measure. New York followed suit in 1853. Extension of compulsory attendance laws was held in abeyance until at the end of the Civil War, but by 1900 thirty two states, in most of the North and West, had passed such laws. In 1918, Mississippi's acceptance of the principle rendered the idea of compulsory elementary education universal. Variations from state to state and region to region involved length of annual attendance, the compulsory age period and means of enforcement. The burden of compulsory attendance tended to force differentiation of school purposes and curricula in order that the diverse educational needs of a heterogeneous population might be met. (5: 415)

Conservation Education Conservation education has traditionally stressed ways to counteract the bad effects of the misuses of natural resources as well as ways to preserve resources. The period of 1960 to the present has given rise to a national movement toward conservation

education, often referred to as ecology, for the purpose of educating the American public to awareness of the elements of our culture and civilization which have brought about misuse of resources and abuse of the environment resulting in water, air, land, and noise pollution. Because additional conservation education fell short in making people aware that conserving the environment is every person's job, it has been proposed that conservation education efforts expand in the following ways: (1) emphasize outdooor education and nature study; (2) acquire natural areas for schools and communities; and (3) educate for higher values (i.e., conserve resources through establishment of a stable population and rigid efficiency in the use of non-renewable materials). Presently, little of an organized nature is done in the public schools to educate the young learners to the new concept of conservation or ecology and their role in its success. Future development of such a course appears eminent in light of the crisis we now face of survival in a polluted environment. (21:187)

Consolidation of School Districts The reorganization or consolidation of redistricting, as it is sometimes called, of school districts involves the rearrangment of school district boundaries in order to construct larger, more efficient units or to consolidate resources so as to provide special services, such as area vocational-technical schools and community colleges. At the close of World War II, there were about 103,000 school districts in the United States. Through reorganization this number has been reduced to about 23,000. The number of districts too small to operate their own schools had been reduced by more than two-thirds since the war. (10:100)

Core Curriculum The most popular form of curriculum design from 1930 to 1950. Although it had no uniform pattern, the core tried to avoid the atomistic quality of the elective curriculum by pulling together such subject matters as were cognate to it. As the core was usually larger than any single subject-matter area, it often required longer than one class hour to encompass it. The core curriculum could be so braad and diverse no teacher could handle it alone. Hence the growth of "team teaching"to attempt a cooperative solution to the problem. (1) subjects or a common body of experiences required of everyone, but with variability of content and activities to meet the varying needs of individuals. For example, part of senior high work may be a basic core running through grades 10, 11, and 12 with variable time allotments. A certain portion of each day may be devoted to the core, or common learnings. (2) an integration of traditional subject matter into forms taking fuller account of the development of children and the changing needs of adult life. Units of work such as "man and his environment", "living in contemporary America" are such examples of core projects around which required and elective activities are made available. Each unit allows for (a) the expression of individual interests; (b) widely diverse student activities and (c) study in depth of some crucial aspect of contemporary civilization. Traditional subjects are taught using the materials and activities developed within the core project. (4: 300)

Creative Education Since 1950 interest in creativity in education has stemmed from J.P. Guilford's investigations in the domain of creative thinking. Guilford stressed the intellectual operation of divergent thinking as part of his model of the structure-of-the-intellect and he closely tied divergent thinking to the creative process. According to Guilford, divergent thinking rather than high IQ is the intellectual substratum of creative performance. Several strategies developed for liberating creative thinking in the classroom are: (a) brainstorming (production of large quantities of ideas under nonjudgemental conditions; (b) provision of a permissive atmosphere accompanied by reinforcement of original behavior; (c) laboratory training of originality; (d) auto-instructional programs of story material and (e) low degree of controlling behavior by teachers. Efforts toward facilitation of creativity through education are just beginning with the primary difficulty being one of establishing criterion or an index of creativity. The progressive movement in education emphasized creative education. (11:268)

Dalton Laboratory Plan A laboratory plan for individualized learning developed by Helen Parkhurst in 1910 and adopted in Dalton, Massachusetts, in 1920. The plan of curriculum organization was as follows: each pupil was given monthly assignments known as jobs, in each school subject; each job was divided into about 20 units; workbooks and instruction sheets enabled the pupil to work indivisuallly at his job, while a job card enabled him to record his progress; pupil-teacher conferences were held whenever necessary to take the place of recitations; classrooms were known as laboratories; pupils were free to plan their own work schedules but were obliged to finish each monthly job before proceeding to the job for the

succeeding month; cooperation and group work were encouraged. Under this plan children were put on their own initiative and resources in a way which altered from the old recitation method of the nineteenth century. (41:71)

Desegregation In 1954 the Supreme Court ruled directly on the issue of racial segregation in schools. This decision declared that segregation by races in public schools violates constitutional rights guaranteed by the fourteenth amendment. This ruling reversed previous Supreme Court decisions that "separate but equal" schools were permissible. Seventeen years after the decision progress toward desegregation of schools remains slow. School attendance areas based upon residential patterns, new mixtures of populations in rapidly growing urban areas, migration of population within metropolitan areas, resistance to federal authority, and continuing hard cores of prejudice and emotional attitudes have complicated enforcement of the decree. (18:496).

Driver Education In an effort to prevent traffic accidents a program of driver education in the U.S. schools was organized by the AAA in the mid-1930's and by the late 1960's more than 1.8 million high school students had been trained. Driver Education is required in many states and courses are currently taught in more than half of the nation's high schools. An accredited Driver Education course includes a minimum of 30 hours of classwork, 6 hours of on the road instruction and 12 to 18 hours as an observer in a dual-control car. Driving simulators, model traffic boards, and driving ranges are used for instructional purposes. Many states have passed legislation providing for state financial aid to

high school driver education. Policies and guidelines for teacher preparation and certification in driver and traffic safety education were developed in 1965 at a national conference sponsored by the National Commission of Safety Education, NEA. (12: 849)

Elective System Curriculum built around the nature of the child, based on the idea proposed by Froebel and earlier by Kant that the child has an a priori self-active nature that is constantly striving to assert itself. At the theoretical level, it is the latter half of the prescription-election controversy which reached its height from 1825-1850 and which had as its base the question of whether to conceive the curriculum as composed of activities or subject matter. By 1900, it reached the height of its development and acceptance at colleges like Harvard, and in the report of the NEA's Committee of Ten, in which all secondary school subjects were declared of equal worth if pursued for an equal length of time under equally competent instruction. By 1910, liberal minded conservatives felt it wise to allow each learner to map out his own course of study, provided this course contained certain essential subjects in each of the important fields of knowledge. (4: 287)

Environmental Education The Environmental Quality Education Act, authorized $45 million over the next three years for environmental education programs in elementary and secondary schools, became federal law in November, 1970. An Office of Environmental Education is to be established within the United States Office of Education to administer and coordinate the program. According to legislation, activities may include curriculum improvement, dissemination of materials, pre and in-service programs for teachers

other personnel, support for environmental education programs in the schools, etc. (39)

Equalization Procedures Local school districts have been the main determinent of the educational product since the inception of compulsory public education. A drawback to equal educational opportunity across districts is reflected in the fact that a small district can often only afford a meager elementary school system with inadequate facilities and poorly trained and paid staff. In an attempt to equalize the tax burden of residents in small districts as well as to improve the educational program, through a reduction in disproportionate monies across districts, consolidation of school districts into larger units has been encouraged. By 1965 there were still 28,814 local school districts in the U.S., a drop of 52% from the previous decade. (12:611)

Extra-Class Activities That area of the total curriculum which includes experiences carried on outside the regular classroom and which often receive no formal credit. Examples of common extra-class activities are work experiences, out-of-school experiences, camp experiences, clubs, assembly programs, interscholastic programs, intramural athletics, student participation in government and other activities under the guidance of the school. Some purposes of such activities are to: (a) foster democratic human relationships, (b) develop self reliance, (c) promote school morale, (d) develop respect for authority, (e) provide for individual needs and differences and (f) promote physical and mental health. Responsibility for activities is shared by students and faculty. (4)

Flexible Scheduling Flexible scheduling includes a modification in the conventional schedules (characterized by one-day cycling, standard length periods, and high level control over students) that facilitate a greater variety of activities in school than are possible under conventional scheduling condition. Double periods, rotating periods, multiple classes and block time are often referred to as flexible scheduling, though they more closely resemble traditional scheduling. The only complete break from these plans is the more experimental variable class schedule called modular scheduling. Two popular types of modular scheduling are the Stanford School Scheduling System (SSSS) and the Indiana Flexible Schedule (IniFlex S). Both systems have a short time period (20 to 30 minutes) called modules as their unit. Class periods are built on a combination of modules to obtain the legth of time necessary for a particular activity. Through the use of flexible modular scheduling, students can be scheduled into four instructional activities: large group, small group, laboratory and independent study. Its success depends on a high degree of responsibility on the part of teachers and students. Computer aid in scheduling is necessary. The primary aim of flexible modular scheduling is to give students more time to learn independently at an individual rate. (45: 118)

Guidance Guidance had its inception in the mind of Frank Parsons (1854-1908) who first installed a couseling bureau in a Boston settlement house in 1908. Guidance at this time was solely vocational involving only dispensation of personal advice on vocations. From this limited beginning, guidance was greatly improved through the improvement of a

scientific measurement of individual differences. The beginning of educational guidance: (1) guidance concerned primarily with matters relating to schools, courses, curricula and school life, became visible around 1910 through a series of "How-To-Study" books. The enlargement of the scope of vocational guidance into educational guidance has been augmented by its further enlargement to include (a) social and (b) personal guidance, i.e., (a) the phase of guidance that attempts to assist persons or groups in their adjustments to the mores and practices of society and helps them to develop satisfactory interpersonal relationahips and (b) the phase of guidance which aims to assist an individual in respect to personal habits, attitudes, and intimate personal problems. School guidance services today range from help with course selection and scheduling, orientation, compilation and group testing, to personal and group counseling. Some innovative guidance programs are complex systems of services which involve highly trained and specialized personnel: counselors, psychologists, social workers, etc. Passage of the NDEA Act of 1958 and Conant's suggestion that there should be one full-time counselor or guidance officer for every 250-300 pupils in the high school in 1959, helped to expand the view of guidance as a crucial service provided in the schools. (45:132)

Head Start A program first sponsored by the U.S. federal government in 1964 which provides compensatory preschool education for children who are the product of economically handicapping conditions. The programs encompass the full academic year prior to formal school entrance. The broad conceptual foundation of the project rests on the notion that the

quality of children's intellectual development depends upon their early experience and that the achievement of intellectual potential is often impeded by an impoverished environment. Project Head Start is broadly conceived as an seven-compcnent multi-disciplinary enterprise including education, medical-dental care, nutrition, social services, psychological services, parent education, and the involvement of community volunteers. (10:518)

Home Economics Endorsement of home economics as a subject in American public school curriculum has occurred since 1900. A group of leaders met to broaden the concept of home life instruction in 1899 in a series of meetings known as the Lake Placid Conferences. The American Home Economics Association was formed as an outgrowth of ten subsequent Lake Placid Conferences. The objective of home economics education was to focus primarily on strengthening the home by developing in students the ability to live constructively at home and with the family. By 1914 home economics programs were available in some schools in all states, though a broader plan was not implemented until 1920. The 1917 Smith-Hughes Vocational Education Act provided subsidies to states for instruction below the college level and for teacher preparation. The Smith-Lever Act provided for expansion of programs carried on by the land-grant institutions, which by 1914 offered four-year courses in home economics to 12,000 students. The Vocational Education Act of 1963 had as one purpose that of directing home economics toward education for gainful employment that will qualify individuals to engage in occupations involving knowledge and skills in home economics subject matter. The issue of whether to train for gainful employment or continue traditional preparation for home and family life now confronts home economics education. (18:607)

Individually Prescribed Instruction Individually Prescribed Instruction (IPI) was conceived at the University of Pittsburgh's Learning Research and Development Center by Robert Glaser in the early 1960's. Basically it is a plan by which programmed materials and tests can be prescribed for a child by a teacher as needed to facilitate independent study and accomodate individual differences within and across pupils. As of 1969, its principal features include a continuum of behavioral objectives in mathematics and language arts, instructional materials and aids appropriate for self-directed study, procedures for the assessment of continuous progress, and guidelines for teachers in reference to learning prescriptions for individual children. At present, academic continua are available for the entire kindergarten-sixth-grade span. In its "pure" form, IPI is one of nineteen Project Follow Through programs originally authorized for implementation in 1968 under the Economic Opportunity Act of 1964. (15: 118)

International Education A movement to foster the teaching of International Understanding through adaptation of materials in the various content fields and at all levels of the educational ladder. The movement was launched by a yearbook of the National Society for the Study of Education; published in 1937, but launched in 1935 under the editorship of James T. Shotwell. The movement was reinforced in the Sixty-Eighth Yearbook of the Society, published in 1969. (29)

Junior College An idea generated by William Rainey Harper (1856-1906), president of the University of Chicago, that a distinction be drawn between the first two and the last two years of college. He called the first two years the "academic college;" the last two "university college." A change of terms to "junior" and "senior" college did not reflect his distinction in the kind of work done in each. The idea had ample European precedent and it had originated previously in an upward extension of the common school called the "people's college." Junior colleges were expected to be terminal institutions for most students though it was summarily believed that it could serve three groups through its separate two year course of liberal studies, i.e., it would provide a natural break for the departure of learners who could not afford to continue; and it would meet the needs of many who for varied reasons could not take a longer term of residence. Though development of the junior college was slow, by 1940 hundreds of junior colleges had been established primarily in the middle and far Western states, particularly in California and Missouri. (5: 397)

Junior High School The result of a reorganization of the high school in the early 1900's to include 7th and 8th grades as a junior high school within which some secondary subjects such as algebra, science, and foreign language would be taught. The idea of a junior high school stemmed from thoughts presented in 1888, by Charles W. Eliot (1834-1926) before the National Education Association in a speech entitled "Can School Programs be Shortened and Enriched?" Eliot made the proposition later taken up and approved by the Committee of Ten and the Committee on College Entrance

Requirements that secondary education commence two years earlier than had been customary. Eliot argued that the elementary school wasted much time on endless repetition, that a break after six rather than eight years more closely paralleled mental and physical changes of adolescence and that a shortening of the elementary program would allow for more vocational differentiation and preparation in the last two years of the secondary school. In 1909 and 1910 both Berkeley, California and Columbus, Ohio claimed the first high schools, though Richmond, Indiana is reported to have begun one in 1893. (4:417)

Kindergarten An educational setup or section of a school system devoted to the education of small children from 4 to 6 years of age. Based on the theories and practices of Froebel and brought to the United States around 1850 by German intellectuals, it was first tried in 1873 in the St. Louis school system. The experiment recommended by Superintendent William Harris and successfully directed by Miss Susan Blow, attracted nation-wide interest. By 1918, the kindergarten had been commonly accepted as the first rung of the American ladder system. Kindergarten is usually characterized by organized play activities having educational and socializing values, by opportunities for self-expression and training in how to work and live together harmoniously, and by an environment, materials curriculum and program carefully selected to provide for child growth and development. Modern kindergarten is based less on Froebel's principles and theories and more on recent findings of studies in child growth and development. (4:307)

Linguistic Method The term linguistics has only recently appeared in the literature devoted to the teaching of reading. Linguistics deals with the origin, nature, modification, and structure of language. The advocates of linguistic methods of teaching reading place strong emphasis upon the study of patterns of speech, vocal habits, and systems of sound symbols such as the arrangement of words in sentences, and the variation of function of meaning when the same word occurs in different locations in a sentence. (44:10)

Look-And-Say-Method Disappointment with the results obtained from artificial phonics led to emphasis on the Look-and-Say method in which teachers discarded all forms of word analysis. From about 1910, the Look-and-Say method was employed for non-phonetic words. (44:10)

Media and Technology The entire spectrum of materials and equipment that provides the teacher with the means to make information available to the learner. Though media have been available since the inception of the American Educational System, the first two-thirds of the present century witnessed more changes in educational materials than the three and two-thirds centuries that elapsed since the first Latin grammar school was founded in 1635. The expanding resources and media include: systems approaches to using media, new printed and graphic materials, programmed textbooks, new "write-on" surfaces, audio and video recording equipment, telephone and telelecture, language and audio laboratories, sound slides and filmstrips, single-concept films, film cartridge projectors, airborne distribution systems, computer-assisted instruction, simulation techniques, and information storage and retrieval. (3:7)

Microteaching - Teacher Education Micro-teaching was developed by Professors Dwight Allen and Robert Bush in the teacher preparation program at Stanford University between 1960 and 1967. It is an extension of the development of feedback techniques in the field of human relations training, but it is distinguished by several innovations including video tape recording teaching, and then reteaching micro-lessons, and the rotation of groups of school pupils for each teaching episode. Micro-teaching is based on the assumption that there are strategies which are crucial to effective classroom instruction. By moving from simple to more complex miniature teaching encounters it is hoped these strategies are improved. At each step, a particular teaching strategy is discussed and then incorporated into a short (5 minute) teaching lesson. The trainee teaches this lesson to a group of four to six pupils in front of a video camera, a superviosr, and often, trainee peers. Pupils fill out a rating form and are then dismissed. The video recording is replayed and criticized. The trainee makes one or two changes based on the criticism. A new group of pupils is taught the revised lesson and comparisons are made between the two lessons. A single teach-reteach cycle can be completed in 30 minutes or less. It is the reteach cycle, which gives an opportunity for additional practice, to which micro-teaching owes its success. (16: 2)

Middle School Instituted in some schools after 1950, an experimental form of secondary school reorganization which included the sixth grade in the junior high school, thus making the junior high school a four year school which included grades 6, 7, 8, 9. In only some cases

was this modified session of junior high school called a "middle school." Technically, the term has come to refer to the administrative unit on the secondary level containing the grades that follow the elementary school and precede the last unit in the school system. (18:346)

Mid-year Promotions The practice of promoting pupils at all levels at mid-year, involving two promotion and two graduation periods per year. It was inagurated to help deal with the problem of retardation and social promotions. (4:378)

New Leadership Roles - Staff Differentiation This category refers to new leadership positions opened in schools as represented by curriculum director, general supervisor, special education teachers etc. One result of this expansion of new personnel to take over responsibilities traditionally assumed by teachers or administrative staff was an alteration in school organization. Though individuals varied in the specific role or function they served, all were a part of a general effort to help the classroom teacher and to more efficiently share in administrative responsibilities of managing and improving the school system. (39)

Nongraded School A nongraded school is one in which grade labels are removed from some or all classes. When grade labels are removed from kindergarten and the first three grades, the arrangement is known as a nongraded primary unit. A similar vertical arrangement for the grades four, five, and six is a nongraded intermediate unit. In pure nongrading, the sequence of content is determined by the inherent difficulty of the subject matter and the learner's demonstrated ability to cope with it; materials are selected to match the spread of individual differences existing within

the instructional group and the learners move upward according to their readiness to proceed. Promotion or non-promotion does not exist as such. An important goal is to provide continuous progress for each child. Nongrading is intended to facilitate curricular and instructional provisions for the individual differences present in a class group.

(31: Part I)

Nursery School A school for children between the ages of 2 and 4 years, concerned with optimum development and adjustment of the individual child as a member of a group. First introduced around 1910 for the purpose of attending to the physical and mental health of the children in a preventive manner i.e., medical inspection was held upon arrival each day, diet and eating habits at lunch were carefully supervised and the nursery school teacher paid close attention to see what attitudes and habits were being formed during free play activities. The view that the first four years were critical to the future development of the child, a view based on Arnold Gesell's (1880-1961) and J.B. Watson's (among others) investigations of child development, was the impetus behind the movement to provide nursery schools to supplement the home as the main educational agency. The primary supplement was provision of an adequately equipped place where the prekindergarten child could play with others of his own age under skilled supervision. Though the Lanham Act of 1940 gave some federal funds to aid in the financing of public nursery schools, the nursery school started as a private enterprise and is still largely in that phase.

(4: 385)

Open Classroom The term "open education" refers to an approach to elementary school teaching which has spread widely throughout the British Infant schools - enrolling children aged 5 through 7 since World War II and which has been cropping up in a variety of American classrooms since 1965. The approach discards the usual elementary classroom set-up and the traditional roles of teacher and student for a freer, more informal, and highly indivdiualized learning experience. Characteristics of classrooms using the approach are: (a) classrooms are decentralized and rows of desks and chairs are replaced with spparate "learning areas"; (b) children are free to move about the room, talk to each other, and choose their own activities; (c) teachers work mostly with individual children or groups of two or three; (d) heavy stress is placed on designing a classroom environment wich in learning resources. (10)

Phonic Method The first phonic era began about 1870 and continued to be emphasized until about 1920. Several elaborate systems for the use of phonics in word analysis were developed. Pupils were kept so busy sounding out words that they became slow laborious readers who lost sight of meanings. In time, the folly of this artificial method was recognized and it was abandoned. Today, descendents of these early phonetic systems have returned phonics to the teaching of reading and promote the teaching of reading through the phonics system. (44: 9)

Physical Education The American Association for the Advancement of Physical Education was influential in the recognition of physical education as an essential part of the educational curriculum. A critical evaluation of the field from 1885-1889 culminated in the Boston Conference of 1889 which enabled leaders in the field to compare the value of various systems of physical education and determine what kind of program would best meet the needs of American youth. Traditional gymnastics, favored by leaders at the Boston Conference gave way to Wood and Hetherington's new physical education of sports and games which forms the core of present day physical education programs. With state legislation came state physical education directorships to be administered by state departments of public education. The aims of physical education are: (1) organic education for vital vigor, (2) psycho-motor education for power and skill in neuro-muscular activities, (3) character education for moral and social growth and (4) intellectual education acquired through free play as development of social thinking reflect a more wholistic goal of physical education to provide American youth with a program for total fitness. (34)

Platoon Plan or Gary Plan The first permanent plan of platoon school organization initiated in 1908 in Gary, Indiana, by Superintendent William Wirt, based on the following scheme of organization: the school was divided into two platoons, each platoon containing half of the classes of each grade; continuous utilization of all school facilities was secured by having one platoon do classroom work while the other engaged in activities involving the use of the auditoriums, shops, gymnasiums and playfield, the two platoons alternated throughout the day; all teaching was departmentalized by subject field. The most significant

feature of the plan - that no facilities were ever idle - was specifically its attraction to less wealthy communities who found it difficult to keep their school building programs abreast of the population increase. (18:244)

Programmed Instruction Programmed instruction (PI) is a form of individualized instruction which has as its primary precursors the work of Pressey in 1915 (first development of machines to automate testing and teaching) and the work of Skinner in the mid-thirties (development of operant conditioning with animals and related concepts to the problem of teaching people). The appearance of PI in the 1950's was thus an outgrowth of continuous developments in both education and psychology. PI is characterized by the following: (1) student's attention focused on a limited amount of materials (called a frame or step) at a time; (2) a required response to each segment; (3) immediate knowledge of results (feedback) after each response; and (4) individual pacing. PI materials can be verbal or printed, pictorial, or conveyed by any medium. They include both software and hardware. Though two types of instructional programming, linear and branching, have been extensively used, current trends suggest that linear teaching materials and machines are used less than the branching type. (11:1021)

Project Method A reconstruction of Dewey's problem method developed by William H. Kilpatrick after World War I for the purpose of rescuing the problem method from conservatives who used it to teach the old problems of the traditional curriculum. The project method was first used in agricultural courses to solve a problem in a concrete natural

setting using it as principles learned in school. The method required that the learner (a) assess the situation, (b) conceive of a plan for what was to be accomplished, (c) devise ways and means of manipulating materials to execute the plan, and (d) to check results. Kilpatrick saw the problem method gain vitality in the form of a project. He thus conceived of the project method as a much more general method for teaching. In addition to extending its scope he added a motivational character which became dominant in the method. He described the project as "any unit of purposeful experience, any instance of purposeful activity where the dominiating purpose, as an inner urge, (1) fixes the aim of the action, (2) guides its process and (3) furnishes its drive, its inner motivation." (4:233)

Safety Education In the United States, formal safety lessons were taught as early as 1845. Safety concepts were integrated with other subject matter in the McGuffey readers. The emphasis was remedial rather than preventive instruction. In 1919 a full-time supervisory instructor of safety education was appointed to serve the Detroit school system. The earliest safety patrol project began in 1922. The 25th Yearbook of the National Society for the Study of Education in 1926 was the first discussion of the status of safety education in United States schools. Safety education research began in the 1920's. A survey in 1938 showed that 23 state departments of education provided courses of study in general safety. The safety education break through in school administration came in 1940 with the publication of the yearbook Safety Education of the American Association of School Administrators. The period of World War II saw only limited advances. During the years following World War II, numerous nonschool safety agencies provided workshops

and short courses for teachers and college professors, particularly in driver and traffic safety education. Today safety education is made an intergral part of each basic area of learning in the elementary schools. In junior high it involves water safety, fire safety and first aid. In senior high, experiences lead into lifesaving, firearm safety, civil defense and traffic safety. (11: 1160)

School Psychologist A school staff member with specialized training in psychological procedures and techniques (preferably holding at least an M.A. degree in psychology) who is responsible for conducting case studies of indvidual pupils and for assisting other school staff members in interpreting the behavior of pupils; primarily concerned with individual measurement and diagnosis but does not engage as a rule in counseling or therapy. He functions as a clinician, coordinator, and consultant and is responsible for making referrals to private and public agencies. The school psycholgist promotes the over-all mental health of the school, including in-service training of teachers, consultation with administrators and teachers on the school mental health program and individual casework dealing with student-teacher-parent interaction as it affects the student in school. His services - whether dignified by the title or not - are as old as schools themselves. (4)

Self-Contained Classrooms A form of horizontal organization whereby one teacher teaches all academic subjects to the same pupils of the same age and grade in one room, with perhaps a music or art teacher or physical education teacher teaching at special times; either in different rooms or in the self-contained room, the opposite of departmentalization, and traditionally found in the early primary grades in the United States. (10: 165)

Sensitivity Training Sensitivity training is the currently popular name for a method of experience-based learning originally known as T-Group training. Variations of sensitivity training are encounter groups, personal growth groups and marathons. The purpose of sensitivity training is to strengthen the individual's desires to experience people and events more fully, to know himself more intimately and accurately, to find a more significant meaning for his life, and to initiate or sustain a process of individual growth toward ever-increasing personal adequacy. At most teacher education institutions, encounter situations are usually reserved for graduate students who are studying psychology or counsel or education. However, there is some inconclusive evidence that sensitivity training in a teacher preparation curriculum has an impact on teacher sensitivity. In spite of an acknowledged need for sensitive teachers and teacher educators who can improve classroom group processes, initially expressed in a statement by Carl Rogers in 1969 in Freedom to Learn, the conduct of sensitivity training in teacher preparation at the undergraduate level in most educational institutions is, where practiced, distinctly experimental. (8: 141)

Sex Education The White House Conference on Children and Youth in 1950, gave impetus to the demand for consultation in the area of human growth and development and sex education in American schools. In 1964 the Sex Information and Education Council of the United States (SIECUS) was formed to act as a catalyst between the professions and the general society regarding human sexuality. The primary objective of SIECUS was to provide guidance in aiding communities in assuming responsibility for sex education. During 1960 the rise of venereal disease in epidemic

proportions and the clear need for children to understand more clearly the role of sex in their lives led to beginning efforts at development of sex education curricula across the country. Concerted and concentrated efforts from several religious and political groups have seriously hampered progress in the development of sex education programs. Although there is a great need for effective sex education, either through the educational, medical, or religious professions, the questions of what to teach, how and by whom remain unresolved. (6:674)

Silent Reading Just prior to 1920, the method of silent reading was launched. It was given a big play in the 1920's, while oral reading was neglected. During the following decades particularly from 1940 to the present, authorities have advoated the teaching of both oral and silent reading. (44:10)

Social Promotion Sometimes called automatic promotion, the practice of advancing learners to the next academic grade level on the basis of age, social group, or factors other than scholarship. The problem of retardation in heterogeneous graded classrooms first stressed by Charles W. Eliot in 1892 resulted in several plans by which an age-grade match could be maintained. Among these were semi-annual promotion, variation in curriculum or promotion plans. Promotion in Quincy, Massachusetts and St. Louis, Missouri, was placed on a semi-annual basis. The Batavia Plan in New York recognized two groups in a classroom, normal and slow, and special help was given the slow group so both groups could be promoted together. The Cambridge Plan, based on the same principle as the Batavia emphasized pushing the bright ahead rather than bringing the dull up to

standard. Multiple tracking methods also developed whereby all students in a given grade were promoted at the same time, but with varying accomplishments. The philosophy behind these programs derived from the belief that retention of a pupil was deleterious to his academic progress as well as his social-emotional adjustment. Abundant experimental research findings from the investigation of the question of retention versus social promotion has substantiated the truth of earlier beliefs. Currently social promotion, or age-grade placements provide auxiliary classes on a non-permanent basis. Such a device relieves the regular grade of the burden of carrying wither a retarded or gifted pupil. (4: 377)

Special Education Special education is the education of exceptional children who are handicapped by mental retardation, exceptional mental ability, visual impairment, hearing impairment, emotional and social maladjustment, speech problems, and learning disabilities. The field of special education had important beginnings in the nineteenth century represented in the work of Itard, Seguin, Montessori, Braille and others. Residential schools established for deaf, blind and retarded children during the late nineteenth century set the pattern for special education in the United States. In the United States only modest efforts occurred in the field from 1900-1950. Since 1950 special education programs in many states have doubled and redoubled. By 1963 about one-half the school systems in the United States were thought to be providing some special education services. Each of the 50 states how has some form of special legislative provision for special education programs. Since 1956, the United States Office of Education has become a strong influence in

a combined effort of federal, state and local agency support of special education programs. In 1967 U.S.O.E. created a new Bureau of Education for the Handicapped to oversee the funding of research and development projects. Beginning in 1957, Congress authorized increasing support of training programs for teachers and other personnel needed to conduct special education programs. Current trends in programs for the Handicapped are: (a) a movement toward greater use of local day-school programs over residential schools; (b) services provided at an earlier age, and (c) more specialized school provisions for multiple-handicapped children. (11: 1254)

Storefront Schools During the 1960's, criticism of public education shifted from attacking outdated curricula and ineffective teaching methods to criticism of schools themselves. Alternatives to traditional schools, have been developed by an estimated 2,000 groups across the country. Many storefront centers or schools developed in inner cities have as their purpose to enrich the lives of neighborhood children and expand their educational opportunities in cooperation with the public school system. Others, separate from the public school system, hope to replace traditional schools with a more flexible approach to education on a community-centered and permanent basis. (18)

Student Teaching Student teaching is the observation, participation and teaching done by a student preparing for teaching under the direction of a supervising teacher or general supervisor. Until after World War I, student teaching consisted of imitation and practice of a particular method taught by a professor and demonstrated by a model teacher in the

classroom. After 1920, student teaching was viewed as a means to illuminate the theory of the college course. It was directed to introduce the neophyte into the full-range of teacher activities. New concepts about the nature and purposes of student teaching have evolved from research on teaching conducted in the 1960's. Student teaching is now viewed by some in the field as providing an opportunity for the student teacher to learn to analyze, criticize and control his teaching behavior. Clearly, new concepts of student teaching have developed out of a re-examiniation of the relationship between preservice and inservice education. The new student teaching, as viewed by the Joint Committee on State Responsibility for student teaching in 1967, would offer a creative and fulfilling teaching experience as well as an opportunity for critical analysis. It is not confined to a block of time at the end of the senior year and it included a wide range of activities from simple observation to development of skills in discrete elements of the teaching act. (11: 1378)

Team Teaching Team teaching is a form of organization of the instructional staff at the elementary and secondary levels. Teams of teachers may work "vertically," i.e., at several grade levels in a single subject or closely related subjects, or they may work "horizontally," i.e., at one grade level but in several subjects. Such organization allows for more flexibility for planning, organizing, presenting, and evaluating the educational experiences of the students. Each team has a leader, variously named "team leader," "master teacher," etc. Each team member assumes major responsibility for his specialization, but works always as a member of the team. Sometimes paraprofessional teaching or clerical aides assist the team. Some purposes of this form of organization are to :

(a) capitalize on particular strengths of individual teachers, (b) facilitate more efficient use of teacher time and talent, (c) promote cooperation and learning among teachers by breaking down the isolation of the typical classroom, (d) widen the influence of good teachers, and (e) improve teacher morale. (10: 164)

The Testing Movement The period of time from 1915 to 1930 often referred to as the "boom" period in test development. The movement had at its base E.L. Thorndike's conviction that objective measurement in education was possible. The work of other test-developers such as Binet, Terman, Cattell, and Otis, laid the groundwork for the inevitable development of standardized tests for all the school skills and content areas for the school program. Achievement batteries appeared during this time and starting with Army Alpha of World War I, group intelligence tests were produced in great numbers. Following another wartime product, the Woodworth Personal data sheet, a myriad of personality questionnaires and inventories were developed. Tests of intelligence and achievement were subsequently administered widely and somewhat indiscriminately. In their enthusiasm for objective measurement, some advocates were critical neither of their instruments nor the interpretation of results from them. Thus, the pendulum swung back from 1930 to 1945 to a period of criticism where issues such as heredity-environment, use of test scores for classroom grouping, and the use of numbers to express psychological qualities, were reviewed. (43: 6)

Tests and Measurement in Education In the United States, prominent figures in the development of educational measurement were Horace Mann, J.M. Rice, E.L. Thorndike, and Ben D. Wood. In 1845 Mann persuaded school

committees in Massachusetts to shift from oral to written examinations. Joseph M. Rice campaigned (1891) for educational reform on the basis of data gathered by wide-scale objective tests. E.L. Thorndike (1918) developed the techniques of objective testing and popularized the use of such tests. Wood began cooperative test development, statewide surveys of tested achievement, cooperative testing programs and electrical test scoring equipment. Educational aptitudes are measured to help give purpose and direction to educational efforts and to report the degree of success in learning. Though public and professional attitudes toward measurement in education are divided, the widespread and growing use of tests in the schools would suggest that a majority of educators feel they are necessary and useful. Most school systems today have established and used some kind of local testing program. (43)

Thirty-Schools Studies A series of investigations sponsored by the Progressive Education Association during the 1930's of the effects of a variety of plans of curriculum experimentation on various aspects of pupil growth and on later achievement in college. (18:571)

Unit Method-Subject Matter (1) a selection of subject matter, materials and educative experiences built around a central subject-matter area; to be studied by pupils for the purpose of achieving learning and assimilation outcomes that can be derived from experiences with subject matter. (2) Unit - a major sub-division of a course of study, a textbook, or a subject field, particularly a subdivision in the social studies, practical arts, and sciences; (3) an organization of various activities, experiences,

and types of learning around a central problem, as purpose, developed cooperatively by a group of pupils under teacher leadership; involves planning, execution of plans, and evaluation of results. John Dewey's and Johann Friedrick Herbart's thinking has been seen as the basis for unit work, first developed in the 1920's. Dewey's book "How We Think" was especially influential in which the use of a problem, performing its analysis and solution, were suggested as profitable learning activities. A unit is an organization of objectives, activities, and resources, with its focus on a purpose or problem, prepared for use in a teaching-learning situation. A unit can be viewed as (a) the act of planning evidenced in a written plan or (b) the teaching-learning activity engaged in by pupils and teachers which is the implementation of that plan. The unit method is currently viewed by subject matter experts as a way of bringing order to the many concepts, generalizations, skills, and attitudes that are available to be taught. Unit planning is viewed by others as a means of transforming classroom practice from textbook oriented lessons to the use of a problem of topic orientation, from single subject to a crossing of several subject areas and from the use of a single test to using a wide variety of resources. (18: 587)

Unit Plan A plan propsed by Henry Morrison (1871-1945) after World War I as an alternative to both the recitation method and problem method. The plan was a move away from dependence on Kilpatrick's proposed "inner urge" which lay at the heart of the project method. It emphasized the mastery of subject matter through the formula of pretest, teach, test the result, adapt procedure, teach and test again to the point

of actual learning. Morrison's tactics of teaching had five Herbartian steps: (1) exploration (teacher obtains apperceptive base class possesses for the work); (2) presentation (teacher gives main outline of the unit); (3) assimilation (studen collects data for learning); (4) organization (steps two and three are developed to a logical point: statement of conclusions); (5) recitation (student presents in oral or written form the final results of his work on unit). The method was an improvement on the former repetition-recitation method of learning, while still ensuring mastery of subject matter. (4: 235)

Updating Curriculum Content There have been two movements to update the content of the educational program in this century. The first was begun in the second decade and was based on the principle of utility and the techniques of activity or job analysis. The second was carried on in the fifties and sixties. Its primary principle was that theoretical knowledge and the structure of the disciplines was superior to practical and technological knowledge. The first resulted in the elimination of many words from the spelling lists, outmoded arithmatical knowledge and skills, and the like. The second produced the New Math, New Physics, etc. (39)

Visiting Teacher A school staff member, usually with training in social work procedures and techniques, who is assigned responsibility for assisting in the solution of individual adjustment problems through work with homes and community agencies and organizations. Visiting teacher services were first established in urban settings in the early 1940's. Currently, the visiting teacher's functions have largely been assumed by a school social worker. (4)

Vocational and Technical Education In 1914 a commission on national aid to vocational education recommended federal grants to the states for occupational training in agriculture, home economics, and trade and industrial education. The successful federal-state partnership in vocational and technical training by land-grant colleges was cited as a precedent for extending such programs to secondary schools. In 1917 the National Vocational Education Act (Smith-Hughes) was passed. From 1917 to 1956 federally supported vocational education programs continued in agriculture, home economics, trade and industrial and distributive occupations. In response to a recommendation that technical training at post-high school levels was a critical need, Congress enacted the Vocational Education Act of 1963 - the first revamping of the original Act of 1917. The occupational fields included new and emerging occupations and brought focus to a new role of vocational and technical education - to train highly skilled technicians. More basic to the new role than the generous provisions of contemporary legislation are the basic social, political and economic changes which combined to make up a new way of life for persons at all levels of the world of work and for institutions which are educating them for it. (11: 1508)

Winnetka Plan A curriculum plan organized on the principle of individual learning rates and developed in 1919 by Carlton W. Washburne in the public elementary and junior high schools of Winnetka, Illinois. The Winnetka Plan recognized not only that children proceed at different rates but also that the same child proceeds at different rates in different subjects. Therefore, diagnostic tests were administered to each child to determine what goals and tasks he should undertake. When, after working

at his own rate of speed (usually in workbooks) the child thought he had accomplished his goals, he took a self-administered test to see if he was ready for testing by the teacher and for undertaking new goals and tasks. Group activities were emphasized too in that both half the morning and the afternoon were devoted to such activities as plays, music, self-government and open forums. (4: 236)

Appendix B

The Induction and Management of Change

THE INDUCTION AND MANAGEMENT OF CHANGE

Changes in schools and how they were induced and sustained can be understood in terms of data and their interpretation, but these data and interpretations take on deeper significance when viewed from the vantage point of a conceptual network about social change. Theories of social change are controversial and many of their concepts are vague and ambiguous. Nevertheless, there is a distillation of ideas which can be of help as we attempt to provide a broad context for the recommencations called for by this report.

The School As A Quasi-Closed System

Turning to the induction of change in the school system, it is useful to think of the school in terms of the degree to which it can be considered as a closed system. Any system may be considered as closed, quasi-closed, or open. A closed system is one which is not dependent upon external influences. An electric motor and the battery on which it operates is such a system. It is not dependent upon the atmosphere, nor is it affected by light or sound. It has its own source of energy, and is governed in its performance by its own internal principles. An open system is one which is influenced entirely by forces outside of itself, as an electronically controlled mechanical man.

Between an open and a closed system is one that is quasi-closed. This is a system which is partly influenced by forces outside of itself,

but is to a large measure controlled by its own inner logic. The school is a quasi-closed system. It functions to produce educated individuals. The kind and level of education that is produced by the system is influenced by external as well as internal forces. As an illustration of internal forces, the teacher carries on instruction from day to day by planning and making decisions from moment to moment. The decisions he makes and what he does in the classroom affects the quality of the school's product. He may, for example, select particular instructional materials and decide to use them in a specific way. These decisions are made internally and in terms of the logic of the situation as it develops. Such countless decisions made by thousands of teachers from classroom to classroom affect and in a sense directly control the product of the system.[1]

In other regards, the school is not a closed system. The financing of the school is determined by the society to which it belongs. The amount of financial support and its distribution within the system will influence the educational program as well as the morale of the faculty. Furthermore, pressures from organized groups may influence the curricular content and sometimes these forces may impinge on the methods of instruction. Then, too, there are legal prescriptions of what is to be taught. Court decisions often prescribe the kind and amount of punishment that may be

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1. The term "school" or "school system" is typically used here to refer to the entire educational establishment from nursery school through the university, although it will be implicit from the text that the term is sometimes used to refer to a segment of the system such as elementary, high school, public school, university and so on.

given to pupils and even the question of who shall attend particular schools as in the case of desegregation.

The fact that the school is a quasi-closed system throws considerable light upon the problem of changing the school. For one thing, it gives some indication of the kinds of influences that will modify the system. There are two classes of influences: those that originate from outside the system and those that originate wihtin the system itself.

Those influences that originate outside of the system are usually rooted in some socio-economic state of affairs. For example, during the first World War, it was discovered that a large proportion of the male population of the United States, some twenty-five persent, was physically unfit for military service. This was a situation that had existed all along and was made known by the military need for able-bodied men to fill the ranks of the service . The question of how to deal with the situation is one that could have been answered in a number of ways: by establishing recreational centers that offered inducements to young people to build their bodies, by encouraging greater participation in such community agencies as the Boy Scouts and the YMCA and by encouraging summer camping activities. The reader can think of other ways the public could have reacted to this social need. But the fact of the case is that the public turned to the school as the instrument through which to make improvements. Accordingly, laws were passed in state after state requiring that a certain amount of time be devoted to physical education in the public high schools. At about the same time the colleges and universities began to require work in hygiene and physical education to meet the need at a more advanced level.

To take a more recent illustration, the mounting death toll and injuries on the highways highlighted the need for instruction in safety. This instruction again could have been given by a number of agencies or by new instruments created by the state. The fact of the case, however, is that the public turned to the school as an instrument by which to teach safety rules and regulations and to give training in the driving of automobiles. The tendency to turn to the school in this case was reinforced by the fact that a disproportionate number of accidents were among the youth. Any number of examples of the way in which influences outside the school have brought about changes within the school itself can be cited. These two examples are sufficient however to indicate the quasi-closed nature of the school system.

Turning now to the system itself, it is fairly easy to find case after case where changes were made by the working of the school's own internal principles and logic. For example, in the early beginnings of educational study as a field of research, Thorndike and Woodruff discovered that the training of one faculty had no effect upon other faculties. They found that training in the ability to estimate weights made no difference in the ability to estimate the length of lines. From these research investigations, they concluded that learning was specific and that what was learned in one situation carried over to another only to the extent that there were elements common to both.

Thorndike's research together with similar studies in various subject matter fields supported the view that no subject was in itself more important than any other subject. This conclusion helped to upset the misconception that for decades had maintained a curriculum in which some

subjects such as Latin and mathematics were held to be superior to others because they disciplined the mind. Partly as a result of these investigations the curriculum became a flexible program containing many more courses and a greater range of electives.

Intellectual Antecedents of Deliberate Change

Whether the impetus for change comes from inside or outside the system, the conditions of change must be analyzed if they are to be understood. In general these conditions are the state of affairs that give rise to the need for change, the factors that cause the state of affairs, and the tolerance for inaction.

Consider automobile accidents. The state of affairs is comprised of such dramatic facts as an annual death rate of approximately 150 persons per day or 55,000 per year. This is almost equal to the death rate attributable to all other types of accidents. The question of how severe a state of affairs must become before some element of the public becomes aroused enough to do something about it has been given little attention. The degree of severity appears to be related to the level of tolerance. The initial state of affairs will typically be shrugged off unless it occurs suddenly and with disasterous results as in a severe earth quake or typhoon. If a state of affairs develops gradually, a point will finally be reached at which the level of tolerance is exceeded and men are moved to do something about it. For example, early in this century the death rate from automobile accidents led to the installation of highway signs and stop signals at intersections.

By 1930 the level of tolerance had been so severely breached that a movement developed to give driver training in the high schools, and now a drive is on to develop safer automobiles and highways.

However, it should be noted that not all efforts to change a state of affairs arise from intolerance toward the situation. Often efforts to make changes are rooted in ideologies and bandwagon mentalities. The introduction of programs of creative education in the 1920's and again in the 1950's did not result from frustration over the failure of existing programs to develop creative ability nor lack of creative talent in the society. In fact few nations, if any, have experienced such an extensive blossoming of creative talent in the sciences as the United States in the period from 1940 to 1960. While the Nobel Prize awards leave much to be desired as an ultimate criterion, they are nevertheless indicative of a nation's creative capacity. From 1901 to 1940 the nation produced 21 Nobel Prize winners. In the period from 1940 to 1969 it produced 72 or more than three times an many as in the preceding forty years. The nation held its own in the categories of literature and peace. Its most extensive gains were in medicine and physiology, physics, and chemistry in that order. In the seventy year period from 1901 to 1970, the nation produced approximately twenty-five per cent of the Nobel Prize winners of the world, the greatest proportion falling in the period after 1940. Yet, in the face of this rapid expansion of creative talent and magnificent achievements in all fields of human endeavor, some school systems invested extensive funds in attempts to develop creative talent. Surely this effort did not stem from any breach of the level of tolerance with respect to lack of creative capacity in the nation. In all probability

its perennial occurrence is attributable to the heuristic ideology that flowers from time to time, and not to any external demand or impatience with creativity as a social lag. Similar observations can be made about perennial attempts to change the form of reports to parents, vacillating emphasis upon different methods of teaching, and emphasis upon permissiveness in one period and control in another to mention only a few cases. In general it can be said that changes which originate largely from outside the school stem from social lags that have exceeded the limits of tolerance. While changes that are rooted internally originate frequently from ideologies.

Unfortunately the emotional drive generated by a state of affairs does not provide a rational basis for dealing with the conditions. To develop a rational basis of action, the state of affairs must be analyzed into the factors that give rise to it. These factors should be taken into account when plans for dealing with the situation are being worked out. Often the adequacy of the plan is contingent on the thoroughness of the analysis. For example, studies have been made to determine the cause of automobile accidents, juvenile delinquency, reading failures, school dropouts, and misconduct in the classroom. In each of these areas of study it has been possible to identify factors that relate to certain consequences and to list solutions that have been derived from findings.

Analysis of the records of automobile accidents show that these accidents relate to the condition of the car, the condition of the driver, improperly marked roads, etc. When relationships between factors that relate to accidents and the accidents themselves are identified, then action

is taken that establishes regulations in the manufacturing of cars, annual automobile inspection, stipulations that speed must be reduced when the pavement is wet or warnings that a curve appears ahead. All of these changes are clearly related to the relationship between certain factors and automobile accidents.

An examination of the history of juvenile law offenders suggest characteristics about intelligence, home background, social relationships, education etc. As a result of these findings, efforts to combat juvenile crime are undertaken which include home visits, provision for "big brothers," curfews and counseling. Even though the juvenile crime rate and its relationship to particular factors in the individual's background can be related, the rate of crime is increasing. It is evident that the disparity between analyzing crime and preventing it is a difficult chasm to cross.

When we proceed to the field of education, the task of analyzing the conditions that give rise to a demand for change are approximately the same as in other areas of human endeavors. Consider ability grouping. What was the state of affairs? Classrooms were crowded with pupils. The results of instruction were unsatisfactory; pupil learning was not in keeping with hopes and aims. The time honored doctrine of individual differences and its accompanying principle of adjusting curriculum and instruction to these differences were prominent features in the picture. Then the testing movement with its instruments and techniques for identifying differences became available. The opportunity was ripe for a new approach to the organization of instruction.

An analysis of this state of affairs was made by instruments for

measurement. It showed not only that individuals differ in intelligence and achievement but also in what amount they vary, making it possible to match pupils as to intelligence and achievement. Furthermore, it was assumed that pupils of the same intelligence and achievement learned at the same rate and encountered similar problems of learning. The change consisted in the formation of homogeneous groups and the adjustment of instruction to the group. Since individuals comprising the groups were said to be similar, adjustment of materials and methods to the group was considered tantamount to adjusting to each individual.

The introduction of driver education which originated outside the school can be analyzed in the same way. The state of affairs included a high incidence of fatal accidents and injuries, entailing extensive financial losses and extensive human suffering. The sort of analysis will influence what is done. If it is found, as is apparently the case, that about forty percent of the accidents are caused by four percent of the drivers, and that they are under the influence of alcohol, then the question arises as to what to do about the intoxicated driver. But suppose an analysis shows that an overwhelming number of accidents involve violations of traffic rules; that these accidents take place in situations where it is reasonable to assume that one would risk his life only if he were ignorant of the rules or deficient in driving skill. If these suppositions are seriously entertained, it would be reasonable to accept the view that driver ed. would reduce the rate of traffic accidents. Naturally the school would be seen as the proper place for such training since that is where the beginning drivers are and the school can most easily develop training programs.

It should be kept in mind, however, that the recognition of a state of affairs, an analysis of it, and the action taken are not steps in a process to be necesaarily taken in that order. They are phases that can and do occur in a variety of sequences. Sometimes an idea for change occurs before one is fully aware of the state of affairs. At other times one is first aware of the state of affairs and then decides what to do before making an analysis. Then again one may make an analysis of a recognized situation and then decide what to do about it. Indeed it is possible, and is often the case, that the analytic phase is omitted or at best slurred over. But this is always done at considerable risk of adapting a course of action that will end in failure. The analytic phase is not essential to action, but it is essential if one is to safeguard his actions against bankruptcy. Analysis does not dictate what course of action one's hunches may suggest, but it does help him to select among his hunches and gives him his only protection against placing his confidence in unwise courses of action. It cannot guarantee success, but it can increase its possiblity.

Induction and Maintenance Of Change

Deciding what changes to make and inducing the changes are two quite different things. Attempts to induce change typically confront the status quo which is constructed of a set of forces the resultant of which is zero. Such an equilibrium of forces must be upset and a new equilibrium established if a change is to be made successfully. Unless a new equilibrium is established, the system in which the change has been induced will drift back to the old balance of forces. To

engineer a social change is to know which old forces to weaken, strengthen, or to ignore, and which new forces to weaken and to initiate or strengthen.

An attempt to change a system that leaves the equilibrium intact is doomed, unless the change consists merely in an acretion to an existing organization as in the case of adding a kindergarten or a junior college to the elementary-high school structure. In such cases the structure absorbs the addition without the equilibrium of forces being upset. The failure of the Institute Program to change conventional teacher education is attributable to the fact that the Institute in no way upset the balance of forces that determine the program of teacher education. Institutes modified neither the centers of power not the conventional programs. Instead they merely tacked on a veneer of instruction, a superficial layer which was easily sloughed off when outside funds were no longer available. The same observation can be made about the Teacher Corp, Early Start, Triple T, Upward Bound, Core Curriculum, and a number of other efforts to modify, supplement, or circumvent conventional programs of one sort or another. They, too, are apt to perish and leave little, if any, residue.

To upset the equilibrium one must know the opposing forces - those which support it and those that would destroy it. These forces can be known in particular instances only by analyzing the equilibrium itself. This is one of the reasons, perhaps the chief reason, why some programs which are germinated and planned in the United States Office of Education and advanced through federal funds are apt to come to nought. There is little, if any, chance for USOE personnel to learn about the forces which will be encountered and whose interaction will determine the success or failure of a particular venture.

To analyze the forces involved in a specified equilbrium would require facts about a particular case and these obviously cannot be available apart from an actual study of the case at hand. It is therefore necessary to be content at this point with a discussion of a few categories of forces typically involved in an equilibrium. One of these categories is vested interest. It takes many forms, depending upon the circumstances. But in most cases it involves a center of power. Few individuals or social groups will surrender power without a struggle. In any event, a shift in power is difficult to make. In many cases it is easier, as well as more effective, to neutralize or circumvent it than to confront it directly. In any balance of forces it is advantageous, almost necessary, to know where the centers of power are and the form the power takes - economic, political, prestigeous, administrative, and so on. An illustration is provided by Edward A. Krugg in his account of the origin of the College Entrance Examination Board. "The establishment on November 17, 1900, of the College Entrance Examination Board provided an instrument for uniformity in college entrance examinations. President Eliot had long been recommending such a board, but the main work of bringing it into existence was done by Nicholas Murrary Butler, who became president of Columbia University in 1901.

Butler's vehicle for the creation of the board was the Association of College and Preparatory Schools of the Middle States and Maryland, an organization formed in 1892. It was to the 1899 convention of this group, held in December at the State Normal School that rigorous discussion took place, with fears expressed by some of the college presidents, especially F.L. Patton of Princeton and Ethelbert Warfield of Lafayette, that colleges

might lose the freedom of selecting their own students." Here it is evident that the presidents were interested in protecting the power of the colleges to determine the conditions of admission, a right which they had long exercised.

This expression of power was dealt with not by direct confrontation but by clever circumvention. As Krugg goes on to say, "According to one version of the proceedings, Eliot gravely assured President Warfield that Lafayette College under his plan could even decide to admit only those applicants who failed the examinations. The roar of laughter following this observation, said Butler later, had much to do with the acceptance of the proposal itself. In any case, the association did pass a resolution for the creation of such a board."

Another powerful set of forces that can work for or against a change is the tendency of persons to conform to a norm of behavior. Individuals hesitate to engage in deviate behavior. They do not easily stray from customary ways of behaving. When they do so, it is only to become a part of some new conformity. Witness the conformity of youth and some adults to the deviation in hair and beard style.

The power of social conformity, especially when it is reinforced by the power of vested interest and the inertia of habit, can go a long way toward neutralizing any effort to induce change in a system. The tendency of beginning teachers to conform to existing patterns is a case in point. It had been widely observed that trainees who have been exposed to new modes of teaching quickly adjust to the old patterns when they begin to work in a conventional school. Beginning teachers, no matter how strongly they may believe in some new way of teaching, learn to conform to the ways of older

teachers or they leave the system. This same social pressure will work to the disadvantage of any attempt to change the system.

The question is how deviations can be induced and sustained in the face of such forces. A number of answers have been given to this question. One is that a critical mass of deviation must be induced into the system all at once. In the absence of a formula for estimating such a mass in particular cases; it becomes a matter of judgement. And intuitive judgements are risky. But that is the state of the art. Another answer is that if prestigeous figures can be induced to adopt the change, lesser figures will follow suit. In this way a critical mass can be developed. Once such a mass is attained, additional participants will join the movement, resulting in a snowball effect.

But this procedure encounters difficulties when there are rival prestigeous individuals, groups, or institutions. To appeal to one prestigeous faction is to alienate the other. This situation has occurred when philanthropic foundations as well as USOE have promoted projects in prestigeous private institutions on the supposition that the example would be emulated by other institutions. When rival factions have been ignored, this procedure has often been counter productive.

What has just been said is of course part of the whole problem of diffusion. There is a tendency for social groups as well as institutions to resist ideas and practices that originate in other groups or institutions. To adopt outside ideas and practices smacks of inferiority, and groups are loath to admit that status. This fact partly accounts for the tendency of ideas and practices to become watered down, or to lose their original significance, as they are transferred from one group or institution to

another. Each one feels itself impelled to do something different even as it emulates the novelty. Each makes modifications and thus changes the original motion without necessarily improving upon it.

An additional set of forces that can influence the induction of change are those which center in the success or failure of prior attempts at change. Previous failures may cause groups or individuals who would ordinarily support change to withhold their support. Even though some individuals or groups pride themselves on being willing to adapt and change when new circumstances demand it, they can be saturated with failure to the extent that they restrain their loyalties to the leadership. On the other hand, successful alterations can whet the appetite for further change. There are many school systems and institutions of higher learning, in which change after change has been started and subsequently aborted by either inept administration or poor planning. The morale of the staff is thereby decreased and the chances of any further alterations being made are reduced almost to zero. Thus, the identification of support for change-ideas in the past phases of a particular school situation may not constitute a reliable source of support in the future..

It should be noted also that assessment of the consequences of a change can influence the probability that the proposed change will be favorably received. It is one problem to determine if a change that is advocated is desirable or not. It is still another issue to have confidence that the stated results will be the actual results. Thus, the planner of change has the manyfold task of clarifying the intended results of change, appealing to the forces that make a difference in the success or failure of the induction, managing elements that may block

change and eliminating doubts that the intended and actual results may be different. Individuals or organizations provide support or resistance to change on the basis of the consequences of the idea for change as they see it. The consequences of the change are viewed differently according to the vantage points of the viewer. Some may consider a given change to be desirable. Others may consider a change to be undesirable and still others may view a given change as useless or a waste of time, even when the factual consequences are agreed upon. But where differences in value orientation are complicated by disagreements about the factual outcome, the possibility of inducing change and establishing a new equilibrium is practically hopeless.

Social and Educational Dividends of the School

Two motives support attempts to make changes in the school. One is to increase the amount of learning or to change what is learned. The other is to alleviate social defects. The first is illustrated by the "right to read" program and the New Biology; the second by driver education and the move to eliminate segregation in the school. There can be little doubt that the first of these motives is well founded; that the school can improve the processes of teaching and learning over which it has control. The public is quite correct in holding the school accountable for the conventional outcomes of the educative process or for any new outcomes that may be assigned to the school from time to time.

Faith in the school as an instrument of social improvement and reform is part of the country's tradition, dating back to the earliest days of the republic. It is little wonder that the school finds itself from time

to time under pressure to take on some new responsibility or finds itself being blamed for a social condition which it did not create. In view of this tradition, it is valuable to know what effect the system has upon the broader social context of which it is a part. This matter may be viewed from two standpoints. In the first place, we may ask what effect the system has upon individuals in the social system when they become adults. Does it produce any greater amount of happiness and enjoyment in the population? Data on this sort of outcome are difficult to obtain. In general it can be said that there is no evidence that happiness and enjoyment is increased in the population generally by an increase in the amount of education. As to the individual's earning capacity, there is firm data. All the investigations show that earning capacity is increased. There is a direct, almost one to one correspondence on the average, between earning capacity and the amount of education. The higher the amount of education, the greater the amount earned during one's lifetime. The less the amount of education, the less money one earns. If the amount one earns is correlated positively with his happiness, then schooling enriches one's enjoyment.

The effect of the school upon the sociological aspects of the society is difficult to ascertain. For example, the question may be raised as to whether education reduces crime, the rate of divorce or the incidence of ill health. There is little or no evidence to support the view that crime is reduced by education and none that the divorce rate is reduced. It is the case that crime tends to be greater among the less educated elements of the population but whether this is due to more strict enforcement of the law at that socio-economic level than at the higher levels or

whether it is due to the general level of poverty that one finds in the lower income groups is difficult to ascertain. Divorce is certainly as high among the educated as among the uneducated, although common law marriages are more common at the uneducated and lower economic levels than at the upper level. The incidence of ill health at the upper economic level apparently is not affected materially by education, but probably is affected by socio-economic circumstances. Generally it can be said that the effect of the school upon specific defects in the social system is largely a matter of faith, and what little evidence there is to support the claim is extremely insecure.

In respect to the relationship between the amount of education existing in an economy and the status of that economy the data are fairly secure. If nations are ordered in terms of their gross national product, and at the same time ordered in terms of the amount of educational expenditures per person, it is clear that the higher the expenditure on education, the greater the gross national product. The nations which spend the least amount per capita on education are at the bottom of the list of nations ordered in terms of gross production. Those which spend the greatest amount on education per capita top the list. This sort of one-to-one correspondence does not prove a cause-effect relation, however, but it does indicate a statistical relationship between the expenditures on education and the economic growth and well-being of the people.

The political behavior of the population is presumed to be associated with the level of public education. One of the cornerstones of democracy is that only an educated people can govern themselves properly. On the other hand, the way that individuals vote on political matters is

apparently determined by economic affiliation and class status as much as it is by the amount of education they receive. It is extremely difficult to disassociate political behavior in individuals from their economic and social position so as to show the effect, if any, the amount of education has upon their political behavior.

It is safe to state that the school does produce certain effects upon individuals within the system itself. That is to say, the school does teach concepts, laws, rules, procedures, skills, and particular facts and values. But whether or not, or to what extent, these learnings affect specific social and political behavior of the population in the broader society is an open question. This uncertainty raises very important questions with respect to changes in the educational system. It is generally assumed that if there is a social problem, the best way to attack it is through changing something in the school that seems to be related to the solution of that problem. That this is a common pattern of thinking among the American people is beyond question. The school is looked upon as the instrument through which all sorts of social maladies can be corrected. The cold fact of the case is, however, that the school's influence upon specific social difficulties may be much less than is supposed. This point raises serious questions as to whether or not the energy spent upon trying to modify the educational program is the most appropriate way to bring about specific changes in society. Nevertheless, it is clear that the general level of education in a nation is definitely associated with the vitality and strength of the nation and the general welfare of its people. What has been said in no way casts doubt on this proposition.